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HUMAN CAPITAL & OPPORTUNITIES

Edited by Nadeem Ul Haque & Faheem Jehangir Khan

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(Volume XIII)

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PART I

HUMAN CAPITAL & OPPORTUNITIES

Research Papers

NATURE, CAUSES, AND CONSEQUENCES OF YOUTH UNEMPLOYMENT IN BALOCHISTAN: AN EMPIRICAL ANALYSIS

Mohammad Ahsan Achakzai, Aymen Sajjad, and Muhammad Tariq Majeed

ABSTRACT

Youth unemployment is a critical public policy issue that has been extensively examined in developed countries. However, there remains a scarcity of public policy research addressing this problem in the context of developing nations. In a similar vein, the youth unemployment phenomenon is also underresearched in Pakistan. In particular, there is a scarcity of research that examined the causes, nature, and consequences of youth unemployment in Balochistan, Pakistan—therefore this study aims to address this research gap in Balochistan and explore the nature, causes, and consequences of unemployment in Balochistan. In Balochistan, young people have borne a disproportionate burden of limited job opportunities, rising poverty, and insufficient human capital. To address this pressing issue, this study investigates the phenomenon of youth unemployment in Balochistan and offers action-oriented policy recommendations to the government, policymakers, and stakeholders.

Employing a mixed-method research design, the study collected qualitative data through semi-structured interviews with students (n=31), employers (n=8), and key informants (n=10), including public policymakers, representatives of international development agencies, employers, and youth of Balochistan. Additionally, a cross-sectional design was adopted for quantitative analysis, surveying unemployed youth (n=101) and employers (n=38) in the region.

The study findings reveal that the nature of unemployment primarily stems from the scarcity of job opportunities, especially for university graduates, leading to significant disparities between rural and urban employment prospects. Many young individuals from rural areas are compelled to migrate to cities in search of livelihoods, which further strains the urban job market and leaves rural regions with limited employment options. The causes of unemployment in the region encompass a mismatch between career aspirations and available jobs, a lack of employable skills due to the formal education system, cultural pressures prioritising early marriages over career pursuits, limited financial opportunities for entrepreneurship, a substantial government footprint in the job market, and regional disparities in job concentration.

These factors have diverse consequences, including hindering economic growth, exacerbating gender inequalities, fostering social challenges, resulting in the loss of skilled human capital through migration, and fuelling animosity against the state, leading to the insurgency. Addressing youth unemployment in Balochistan necessitates a comprehensive approach that promotes job creation, enhances education and technical skills training, encourages entrepreneurship, implements policy reforms, and challenges cultural norms that hinder workforce participation. By adopting evidence-based strategies, policymakers and stakeholders can effectively tackle this complex problem and pave the way for a brighter economic future for Balochistan.

1. INTRODUCTION

Research Background

Youth unemployment has emerged as a critical and multifaceted issue in Balochistan, presenting significant challenges to the province's socioeconomic development and the well-being of its young population (Görlich et al., 2013; Olubusoye et al., 2022; PwC, 2022). Being the least populated yet largest province in Pakistan in terms of land area, Balochistan faces unique obstacles, including inadequate job opportunities, structural issues, and barriers hindering young people from actively participating in the labour market and contributing to the economic activities of the province. Thus, this situation not only affects the economic prospects and well-being of the youth and their families but also hampers the overall economic and social progress of the region (Ahmed & Hassan, 2020).

Recognising the pivotal role of young people as human capital, progressive governments have emphasised investments in youth development initiatives and effective labour market policies to enable the youth to contribute to economic activities (Görlich et al., 2013). However, compared to developed economies, developing regions like Balochistan face greater challenges in addressing youth unemployment due to limited social protection and inadequate labour market policies. As a result, young people often lack formal institutional or government support, relying mostly on their immediate families and friends (Mitra & Verick, 2013), rendering them vulnerable to engaging in precarious work arrangements.

The United Nations acknowledges the significance of creating decent work opportunities for young people and advocates for addressing the youth unemployment issue as a key priority in its 2030 agenda for sustainable development. Global estimates by the International Labour Organization (ILO) (ILO, 2022) indicate that around 71 million young workers were jobless in 2016, and approximately 156 million young workers in the developing world earned only USD 3.1 per day, which is a major contributing factor to youth poverty in developing countries. Additionally, the ILO's recent report reveals that the youth labour participation rate declined between 1999 and 2019, with only 497 million out of 1.3 billion young people (aged 15-24) contributing to the labour market. Despite a reduction in global extreme poverty during the same period, youth poverty remains a serious problem in certain regions and countries (ILO, 2020).

Addressing the issue of youth unemployment is intrinsically linked to the United Nations' Sustainable Development Goals (SDGs), especially SDG-4 (Quality Education and Economic Growth), SDG-5 (Gender Equity), and SDG-8 (Decent Work), all of which have clear implications for fostering youth employment (e.g., ILO, 2022). However, the recent pandemic has exacerbated the youth unemployment problem, particularly impacting young women's employment prospects and livelihood potential, leading to increased vulnerability and insecurity among young people. Factors such as unreliable employment interrupted learning opportunities, and ongoing mental health and well-being crises have contributed to widening existing inequalities for youth, especially those in developing regions (Barford et al., 2021; ILO, 2020).

In Pakistan, young people continue to face challenges in securing decent work, and youth unemployment is becoming an increasingly significant concern. Coherent public policy measures and consistent attention from successive provincial and federal governments are required to effectively tackle the issues faced by young people (Hou, 2010). The challenges include the difficult transition from school to the labour market, unpaid work commitments linked to voluntary family work or other contingent workforce arrangements, and cultural barriers limiting female work engagement (Hou, 2010). A recent study by Imtiaz et al. (2020) identified political stability, poor investment infrastructure, and rising population as the main contributing factors to youth unemployment in Pakistan. Moreover, the ILO (2020) emphasised the critical challenges faced by youth in Pakistan, particularly females, in educational attainment due to limited access to educational opportunities and inadequate-quality education. To achieve desired employment goals, it is crucial to expand the scope of skills provision and

incorporate technical skills with a diverse set of employment skills, competencies, and knowledge base that are universal.

- Balochistan, however, faces a more severe issue of youth unemployment compared to other provinces. Young people in Balochistan encounter multidimensional challenges that include:
- Structural problems concerning youth employment.
- Lack of decent employment opportunities.
- Barriers that hinder youth's effective participation in the labour market.
- In Balochistan, the proportion of youth not in employment, education, or training (NEET) is significantly higher at 41.8 per cent.
- Balochistan reflects a notable gender disparity of 14.1 per cent for males and 75.4 per cent for females falling under the NEET category when compared with the national averages.

Ahmed & Hassan (2020) conclude that these factors affect economic well-being, livelihood, and contribution to the province's overall economic and social development. Despite abundant natural resources, Balochistan lags other Pakistani provinces in terms of economic and social development, highlighting the persistent failure of both federal and provincial governments to effectively address unemployment, poverty, and related issues in the region.

The Pakistan Labour Force Survey (LFS) 2020-21 reports that the young population aged between 15-24 in Pakistan is 41.77 million (GOP, 2021). Further, the underrepresentation of females in education, employment, or training underscores the urgency of addressing youth unemployment in Balochistan (ILO, 2020). The overall youth unemployment rate in Balochistan, as reported in the 2017-18 survey, stands at 10.51 per cent necessitating immediate attention from public policymakers and the current government (ILO, 2020).

In conclusion, youth unemployment in Balochistan is a critical concern, presenting diverse challenges to the province's socio-economic development and the well-being of its young population. Addressing this issue requires targeted policy interventions focusing on improving economic and social development, creating decent work opportunities, and investing in education and skills development to empower the youth and enhance their participation in the labour market. By prioritising youth employment, Balochistan can unlock the potential of its young population, contributing significantly to the province's overall growth and development (Görlich et al., 2013; Olubusoye et al., 2022; PwC, 2022).

Research Scope

Research Objectives

The main objective of this study is to investigate the nature, causes, and consequences of youth unemployment in Balochistan province. Additionally, the research aims to provide fresh insights into the youth unemployment phenomenon, with a specific focus on the challenges faced by marginalised young, educated individuals within the province. The research aims to achieve the following objectives:

- Identify the fundamental challenges that young people in the Balochistan province encounter while seeking decent employment opportunities in the labour market.
- Enhance the understanding of specific skills, knowledge, and competencies that youth, especially fresh

graduates, require to actively participate and make meaningful contributions in their potential roles.

- Highlight the significant role of government and public institutions in developing a comprehensive and integrated framework that fosters youth employment and well-being. Additionally, the study emphasises their overall contribution to the sustainable development of the province.

Research Questions

The study aims to explore and answer the following research questions related to youth unemployment in Balochistan:

- What are the root causes of youth unemployment in Balochistan?
- How is the phenomenon of youth unemployment conceptualised and framed in the context of Balochistan?
- Why do government interventions and policies concerning youth employment lack effectiveness in the Balochistan context?
- What effective measures can be implemented to address the youth unemployment crisis in Balochistan?

The study's findings can play a pivotal role in the formulation of evidence-based policy interventions and labour market reforms to empower youth in Balochistan to secure decent jobs within formal sectors, foster career growth, and ensure sustainable employability in the long run. By achieving these objectives, the youth's active participation in the labour market can contribute significantly to the sustainable development of the province, ultimately benefiting the overall well-being of the local community.

For the analysis, multiple sources of data have been utilised, including semi-structured interviews and survey data. During the initial phase, young individuals (both undergraduate and postgraduate students, both male and female) and employers in Balochistan were surveyed to gather crucial insights. In the second phase, in-depth interviews were conducted with youth as well as key informants, such as senior university staff, government officials, and employers. This approach allowed for the examination of key issues, including the nature and quality of education, while critically assessing the job skills and knowledge required by the youth to succeed in existing and future work scenarios. The data was finally triangulated to strengthen the credibility and reliability of the study's findings.

2. LITERATURE REVIEW

Introduction

Youth employment is crucial for a nation's prosperity, as emphasised in the literature (Görlich et al., 2013; Msigwa & Kipesha, 2013). However, globally, youth face numerous challenges, particularly concerning job opportunities in the labour market. Developing economies, although having lower overall unemployment rates than developed economies, present more significant challenges for youth due to limited social protection and inadequate labour market policies, leaving young individuals with minimal formal institutional or government support beyond their immediate networks (Mitra & Verick, 2013). This situation makes youth more vulnerable, often leading them to engage in precarious work within the informal sector (Mitra & Verick, 2013).

Addressing youth unemployment is closely tied to the 2030 agenda for sustainable development, with the United

Nations Sustainable Development Goals (SDGs) recognising it as a major concern (UN, 2015). The SDGs, specifically SDG-4 (Quality Education and Economic Growth), SDG-5 (Gender Equity), and SDG-8 (Decent Work), are directly relevant to fostering youth employment (ILO, 2022). The overlapping of these goals directs youth from educational institutions to the job market, promoting education and employment opportunities and mitigating unemployment in the economy (Iduseri et al., 2022).

The COVID-19 pandemic has further exacerbated the youth unemployment crisis, disproportionately impacting young people, especially women, with employment losses and reduced incomes (Barford et al., 2021; ILO, 2022). This situation has amplified vulnerability and insecurity, and disrupted education and mental well-being, widening existing inequalities for youth, particularly in developing regions (Barford et al., 2021; ILO, 2022).

Nature of Youth Unemployment

The unemployment rate is one of the main indicators for realising labour market conditions. According to the Reserve Bank of Australia (2023), "the unemployment rate can also provide insights into how the economy is performing more generally, making it an important factor in thinking about monetary policy." Furthermore, decent employment provision and economic empowerment of youth are critical elements enabling a flourishing society and are also linked to achieving sustainable development. In this regard, the UN (2019) noted that "decent work is crucial for young people and their future, but it also has a domino effect on local communities, countries, and the world as a whole."

Youth unemployment is defined as the proportion of unemployed individuals aged 15-24 actively seeking work but unable to contribute to the labour market due to various reasons (OECD, 2022; ILO, 2020). Economic schools of thought offer different perspectives on the phenomenon. The neoclassical view considers involuntary unemployment due to wage rigidity, while the Keynesian perspective focuses on demand-side factors influencing labour demand. Unemployment can be voluntary, such as frictional unemployment, occurring during job search or switching, or involuntary, such as structural unemployment resulting from a mismatch between labour demand and skills (Keynes, 1936; Shackleton, 1985). Other forms of unemployment include cyclical, under-employment, hidden unemployment, and seasonal unemployment (e.g., Porket,1989; UN, 2019)

Globally, youth unemployment has seen a rise of 3.2 per cent between 2000 and 2021, with the current number of unemployed youths standing at 75.1 million (ILO, 2022). Young females face a higher rate of unemployment, with their employment-to-population ratio lower than that of young males (ILO, 2022). Addressing this challenge is crucial to ensuring equitable and sustainable economic opportunities for youth, particularly young women, across the world.

Causes of Youth Unemployment

The prior research delves extensively into the multifaceted causes of youth unemployment, which can be broadly classified into macroeconomic, structural, demographic, and individual factors. Macroeconomic factors, such as GDP growth rate and fiscal tightening, have been shown to influence youth unemployment rates (Baah-Boateng, 2016). Structural factors, including public expenditure on employment services and labour laws, also play a crucial role in shaping youth unemployment trends (Görlich et al., 2013). Additionally, demographic factors, such as the gender employment gap, have been identified as significant contributors to youth unemployment (O'Higgins, 2001).

Further investigations have highlighted individual-level factors that impact youth unemployment. The lack of exposure to job markets, commonly referred to as the "experience trap," has been recognised as a barrier to youth employment (Mehmood et al., 2021). Moreover, inadequate technical skills and limited financial resources for business start-ups hinder young individuals from finding decent work (Mitra & Verick, 2013). Furthermore,

higher entry barriers to the labour market and a mismatch between skills and job requirements have been associated with youth unemployment.

It is worth noting that the flexibility, mobility, and enthusiasm of young people can either positively or negatively affect their employment prospects. While youth have the potential to be an asset to the labour market (Ahmed & Azim, 2010), the absence of institutional support and guidance has been observed as a hindrance to their economic and career development (Qayyum & Siddiqui, 2007).

At the individual level, various factors influence youth unemployment. Demographic characteristics, such as age and gender, are important determinants (O'Higgins, 2001). Human capital endowments, encompassing education levels, skills, and experience, significantly impact youth unemployment rates (Mincer, 1974; Becker, 1975; Visaria, 1998; Demidova & Signorelli, 2012; Baah-Boateng, 2013; Görlich et al., 2013; Baah-Boateng, 2016). Studies have highlighted the widening unemployment gap between highly educated and less educated young workers (Nickell, 1996; Hermannsson et al., 2021). However, this trend may differ between developed and developing economies (Dickens & Lang, 1995; Castillo et al., 2020).

The geographical location also influences youth unemployment, with rural areas generally experiencing lower unemployment rates due to informal employment opportunities (Msigwa & Kipesha, 2013). Family background, including parents' income and education, also plays a significant role in youth unemployment (Pozzoli, 2009). Individuals with strong family backgrounds tend to have better job market access, irrespective of merit-based selection (Iqbal & Khaleek, 2013).

Moreover, economic conditions and labour market characteristics contribute to youth unemployment. Demand-side issues, such as insufficient youth demand in the labour market, have been identified as key contributors (Biavaschi et al., 2012). Simultaneously, the supply side, characterised by a rising youth population and limited human capital endowment, also affects youth employment prospects (Perugini & Signorelli, 2010; Bell & Blanchflower, 2011). Furthermore, economic factors, including business cycles, GDP, foreign direct investment, and trade openness, impact youth employment opportunities (Contini, 2010; Dimitrov, 2012; Anyanwu, 2013; Almula-Dhanoon, 2021).

In conclusion, the issue of youth unemployment is complex and influenced by a combination of macroeconomic, structural, demographic, and individual factors. Understanding these factors and their interactions is crucial in formulating effective policies and interventions to address youth unemployment and foster economic prosperity. Further research in this area can provide valuable insights for policymakers and stakeholders aiming to tackle the challenges associated with youth unemployment.

Consequences of Youth Unemployment

Youth unemployment presents a pressing concern with widespread negative impacts on economies and societies alike. Iduseri et al. (2022) highlight that unaddressed youth unemployment can undermine economies, threaten peace, and destabilise communities. The consequences of youth unemployment are far-reaching, encompassing extreme poverty, social exclusion, psychological distress, increased crime rates, violence, civil unrest, drug abuse, and extremism (Bell & Blanchflower, 2010; O'Higgins, 2001; ILO, 2022). Moreover, the PwC (2022) emphasises that early unemployment experiences for young individuals can lead to long-term consequences, affecting their skills, confidence, and human capital over time.

Beyond its individual impacts, youth unemployment gives rise to broader societal challenges. Prolonged periods of high youth unemployment can have negative macroeconomic consequences, including increased fiscal costs for governments due to lower tax collections and reduced overall labour productivity (PwC, 2022). At the individual level, long-term youth unemployment can lead to economic-driven issues, pushing individuals toward poverty and resulting in skill obsolescence (Ryan, 2000). Such situations further increase the likelihood of future

unemployment, wage penalties, and reduced career prospects (Arulampalam, 2001; Bell & Blanchflower, 2010). Additionally, educated youth may migrate in search of jobs, leading to a "brain drain," which results in a loss of human capital and decreased economic growth in their home country (Shakeel et al., 2019).

The economic costs of youth unemployment are substantial, impacting spending on goods and services, tax revenue, and overall income equality (Marks & Fleming, 1998; Rusanovskiy & Markov, 2016; Grinevica & Rivza, 2017). Simultaneously, the social costs of youth unemployment are equally concerning. It can lead to social exclusion, psychological problems, low self-esteem, increased crime rates, domestic violence, suicide risk, and security issues (Bell & Blanchflower, 2010; Marks & Fleming, 1998; Choudhry et al., 2012; Imtiaz et al., 2020). Moreover, unemployed youth are more likely to engage in drug and alcohol abuse, exacerbating the social challenges (Henkel, 2011). The overall consequences of youth unemployment encompass an array of undesirable socio-economic implications for any nation. Addressing this issue comprehensively is crucial to mitigate its impacts and create opportunities for young individuals to contribute positively to society.

Youth Unemployment in Pakistan

Underutilisation of young human capital poses a pressing global challenge and Pakistan, as a developing economy, is no exception. With a current population of approximately 225 million and a population growth rate of 1.9 per cent (World Bank, 2021), Pakistan is the fifth most populated country in the world. Furthermore, it possesses the ninth largest labour force globally, with 159.8 million individuals belonging to the working-age group, of which 41.8 million are youths (GOP, 2021). Despite the large young workforce, Pakistan grapples with significant unemployment issues, with approximately 4.51 million people unemployed, and youth job seekers constituting 44.9 per cent of this figure (GOP, 2021). Regrettably, the youth in Pakistan face challenges in securing their future due to employment concerns. The ILO (2020) reports a steady rise in youth unemployment rates in Pakistan, escalating from 1.1 per cent in 2011 to 8.88 per cent in 2019. Notably, there are considerable variations in youth unemployment rates among different provinces in Pakistan, influenced by factors such as gender differences, education levels, geographical location, and varying job opportunities across provinces (Ahmed & Azim, 2010; Qayyum & Siddiqui, 2007). It is crucial to consider these disparities while formulating targeted policy responses.

Several studies have looked into the determinants of youth unemployment in Pakistan. Hou (2010) emphasised the urgency of addressing the multidimensional and complex issue of youth unemployment, advocating for political measures. The author pointed out that the transition from school to the labour market is not seamless, with youth unemployment rates surpassing adult unemployment rates. Additionally, cultural factors and gender disparities further exacerbate employment challenges for female youth (Hou, 2010).

Imtiaz et al. (2020) highlighted various factors that adversely impact youth employment in Pakistan, including lack of investment, overpopulation, political instability, and an underdeveloped agriculture sector. Mehmood et al. (2021) focused on the Multan district and found that youth unemployment rates decreased with increasing age and education levels, while higher rates of youth unemployment were observed in rural areas compared to urban areas. Family restrictions due to religious factors also contributed to higher female youth unemployment in Pakistan (Bashir et al., 2013).

In a study conducted in rural areas of the district of Faisalabad, Pakistan, Khurram et al. (2014) identified social discrimination, lack of merit in public sectors, population growth, energy crises, poor governance, economic instability, and terrorism as causal factors of youth unemployment. Ahmad & Khan (2018) investigated factors affecting youth unemployment in Pakistan from 1991 to 2016 and found significant impacts of inflation, foreign direct investment (FDI), and government expenditure on youth unemployment.

Akhtar & Shahnaz (2005) analysed time series data from 1991 to 2004 to study the causal factors of youth

unemployment in Pakistan. Their findings confirmed the role of low GDP and investment in contributing to higher youth unemployment rates. Hafeez et al. (2020) shed light on the factors causing unemployment among educated youth in the district of Muzaffargarh, demonstrating higher unemployment rates among educated individuals compared to less educated ones, with those lacking technical education facing more unemployment.

Existing literature also presents strong evidence of the relationship between macroeconomic policies and youth unemployment in Pakistan (Bari et al., 2021). Notably, money supply, trade liberalization, investment, and budget deficit have been found to impact youth unemployment rates. In conclusion, youth unemployment in Pakistan is influenced by a combination of microeconomic and macroeconomic factors, and addressing this issue requires targeted policy interventions tailored to specific regional and demographic characteristics.

Youth Unemployment in Balochistan

Balochistan, a resource-abundant province of Pakistan, encompasses 44 per cent of the country's land and holds significant geostrategic importance as an industrial hub and trade crossroad. Despite its vast natural resources, Balochistan lags behind other provinces in economic and social development, attributed to political disorganisation, economic backwardness, poor infrastructure, political instability, lack of democratic institutions, inadequate education, and security issues (Ahmed & Baloch, 2017).

Youth unemployment poses a major challenge in Balochistan, especially due to a scarcity of decent employment opportunities. Compared to other provinces, Balochistan faces critical issues in effectively addressing unemployment, poverty, and related matters, despite its abundance of natural resources (Ahmed & Hassan, 2020). The youth population in Pakistan is approximately 41.77 million, with 32.5 per cent of them not in employment, education, or training (NEET). However, in Balochistan, the NEET rate is 41.8 per cent, 75.4 per cent of which are females, indicating their underrepresentation in education and employment (ILO, 2020).

Balochistan exhibits the lowest employment-to-population ratio (38.6) in Pakistan after Khyber Pakhtunkhwa, particularly affecting female employment (11.3) compared to males (61.6). Additionally, Balochistan reports a youth NEET rate of 41.8 per cent, higher than the national rate of 32.5%, with females being more affected (GOP, 2021). The youth participation rate in formal and informal education and training in Balochistan is 24.5 per cent, lower than in other provinces, particularly affecting females (14.4%) compared to males (32.8%). Moreover, rural youth in Balochistan are less engaged in educational activities than urban youth (GOP, 2021).

Unemployment in Balochistan is predominantly a rural phenomenon, with higher rates among young females than males. Limited research suggests that despite a high youth labour force participation rate, employment opportunities are fewer in Balochistan compared to other provinces (Ahmad & Azim, 2010). Various factors contribute to unemployment, including rising population growth, lack of skills, low education levels, and inadequate investment in traditional sectors (Haider et al., 2021; Ahmed & Hassan, 2020). Additionally, female youth unemployment is affected by limited mobility and restricted opportunities for education and employment in certain regions of Pakistan (Naqvi et al., 2002; Arain et al., 2013). The absence of industrial development and political instability further exacerbates unemployment in Balochistan (Ahmed & Hassan, 2020; Ahmed, 2018).

To address youth unemployment, it is crucial to match youth skills to labour market demands and promote entrepreneurship activities. Investing in human capital and enacting employment protection legislation are also vital steps to creating job opportunities and uplifting the financial well-being of the youth. The government should strategically invest in infrastructures and markets with a labour-intensive focus while encouraging part-time and rented work contracts to control youth unemployment.

In conclusion, tackling youth unemployment in Balochistan requires addressing the mismatch between education and market demands, fostering entrepreneurship, and investing in human capital. Effective policy measures and collaboration between the government, private sector, and educational institutions are necessary

to empower the youth and promote economic growth in the province (Ahmed & Hassan, 2020; Ahmad & Azim, 2010).

Solutions to Address Youth Unemployment Issues

In addressing the critical issue of youth unemployment, one effective approach involves enhancing education and skills among the youth. The connection between unemployment and inadequate education and skills highlights the importance of aligning employment policies with educational strategies. A historical example from the United Kingdom in the 1980s illustrates this approach, where the Department of Employment and the Department of Education and Science merged to form a new department – Employment and Education, aiming to tackle unemployment through education (Rieger, 2018).

India's government also demonstrated a successful initiative to promote youth entrepreneurship and self-employment. The introduction of schemes like TRYSEM (Training of Rural Youth for Self-Employment) and SEEUY (Self Employment Scheme for Educated Unemployed Youth) transformed educational institutions by integrating vocational training programs, encouraging self-employment opportunities for the youth (Satyanarayana, 2011).

Investing in human capacity development is crucial for creating a skilled workforce. By providing training and skill-building programmes, the government can equip young individuals with the capabilities demanded in the job market (World Bank, 2019). Furthermore, implementing employment protection legislation is essential to safeguard labour rights and create a stable working environment for the youth (Eichhorst et al., 2013).

Strategic investment in infrastructures and labour-intensive markets is another approach to tackling youth unemployment (Verick, 2023). Such investments can spur job creation, particularly in sectors that require a higher workforce, benefiting the youth in their job search (Dingel & Neiman, 2020). Encouraging part-time work and offering rented work contracts are practical steps to address youth unemployment. By providing flexible employment options, the labour market can accommodate a broader range of opportunities for young job seekers (Picchio & van Ours, 2017).

In conclusion, addressing youth unemployment requires a multifaceted approach that involves developing education and skills, promoting entrepreneurship, investing in human capital, enacting employment protection legislation, and strategically investing in labour-intensive infrastructures and markets. By implementing these strategies, governments can mitigate youth unemployment and foster economic growth (Eichhorst et al., 2013; World Bank, 2019; Verick, 2023; Dingel & Neiman, 2020; Picchio & van Ours, 2017).

3. RESEARCH METHODOLOGY

Introduction

This section presents the research paradigm, strategy, methods, and data analysis process adopted for this research. The purpose of this study is to examine the causes and consequences of youth unemployment in Balochistan. The review of extant literature suggests that studies on the youth unemployment phenomenon are scarce in the developing world context. Furthermore, the review suggests that there is a dearth of empirical research investigating youth unemployment in the context of Pakistan.

Research Strategy, Process, and Data Collection Methods

To gain deeper insights into the youth unemployment phenomenon, this study has utilised multiple sources of data. The study has adopted a pragmatism paradigm and employed both qualitative and quantitative research methods (i.e., a mixed method design) to investigate the youth unemployment problem in Balochistan (Bell et al., 2022; Creswell & Creswell, 2017). Pragmatism, a philosophical tradition, emphasises the value of human experience. This paradigm suggests that diverse viewpoints and/or facts gathered through research are to be measured by their practical implications (Peirce, 2014). Pragmatism fosters the flexibility to appreciate the merits of both quantitative and qualitative methods to develop more robust and meaningful research findings. Accordingly, for the present study, data was collected from a wide range of stakeholders, including unemployed youth, senior university staff, employers from the corporate sector, university students, and policymakers. By incorporating these diverse perspectives, we have put forward several practical policy recommendations that can effectively address the issue of youth unemployment in Balochistan.

Furthermore, the study offers a strong foundation for developing a holistic response to tackle the youth unemployment problem in the province. By doing so, it seeks to promote the economic potential and social well-being of young people in Balochistan. Accordingly, the goal is to propose viable and appropriate solutions that can be implemented to effectively combat youth unemployment and foster a positive environment for the province's young population.

The research process consisted of two phases. In the first phase, survey data were collected from youth (n=101) and employers (n=38) in Balochistan. The second phase involved qualitative data collection in two stages. Initially, short interviews were conducted with youth (n=31) and employers (n=8) from various districts in Balochistan, representing all ten universities in the province, namely:

Balochistan University of Information Technology Engineering and Management Sciences (Quetta)

- Balochistan University of Engineering and Technology (Khuzdar)
- Bolan University of Medical and Health Sciences (Quetta)
- Lasbela University of Agriculture, Water and Marine Sciences (Uthal)
- Sardar Bahadur Khan Women's University (Quetta)
- University of Balochistan (Quetta)
- University of Loralai (Loralai)
- University of Gwadar (Gwadar)
- University of Turbat (Turbat).

Following the interviews with youth and employers, the issues identified were further explored through in-depth semi-structured interviews with key informants (n=10) representing senior university staff, the Government of Balochistan officials and policymakers, and members of international development agencies. The purposive snowballing technique was used to recruit participants.

The interview guides were developed based on an extensive review of emerging literature on youth unemployment, focusing on policy debates and empirical work related to the causes and nature of the issue (see Annex 2, Annex 3, and Annex 4). Additionally, reports from international development agencies, government institutions, and peer-reviewed academic journal articles were reviewed and analyzed. Thus, an extensive review

and analysis of the current body of knowledge enabled the development of interview questions most relevant to investigating youth unemployment issues in the context of Balochistan. In this regard, questions highlighting less relevant issues were removed to make the interview prompts more aligned with the research context.

The research team collected qualitative data via semi-structured interviews and all interviews were transcribed, while quantitative data were gathered using a survey. The survey for youth was adapted from the ILO (2009) School-To-Work Transition Survey (SWTS) and includes five main categories with a total of 54 questionnaire items (see Annex 1 – Youth Questionnaire). The employer survey contained two main categories with 32 survey items (see Annex 2 – Employer Questionnaire). Similar to the process of interview guides' development, the research team extensively examined the SWTS questionnaires. This process fostered relevant context-specific data collection. The team ensured that the most relevant items were included in the final questionnaires. Furthermore, through a pilot testing process, we improved the wording of some items and in some cases removed unclear (or vague) items from the questionnaires. Participants' consent was obtained to ensure ethical research conduct, and 101 students and 38 employers were surveyed.

Data Analysis

Descriptive analysis was performed on the survey data, which involves analysing quantitative data as well as systematically interpreting, illustrating, and explicating key research findings (Kemp et. al., 2018). Moreover, a thematic analysis approach was used to analyse the qualitative data, identifying key patterns, research themes, and overarching categories following guidelines proposed by Braun & Clarke (2006). The thematic analysis allowed the interpretation and making sense of qualitative data and gaining insights into the youth unemployment issue in Balochistan.

Thematic analysis is defined as "a method for identifying, analyzing and reporting patterns (themes) within data. It minimally organises and describes your data set in (rich) detail" (Braun & Clarke, 2006, p. 79). First, we identified codes within the data through iterative reading and rigorous analysis of the qualitative data. Codes refer to "the most basic segment, or element, of the raw data or information that can be assessed in a meaningful way regarding the phenomenon" (Boyatzis, 1998, p. 63). Second, codes with related issues or similar narratives are clustered to form coherent themes, which demonstrate patterns in the data that are important or interesting concerning the research issue or phenomenon under consideration.

Research Quality

To ensure research quality, a triangulation approach was adopted, maintaining validity and reliability criteria in a mixed methods design. Several scholars emphasise employing a triangulation approach to enhance research quality (e.g., Bell et al., 2022; Creswell & Creswell, 2017) and to strengthen the validity of research findings. The notion of triangulation involves integrating the findings via multiple sources of data collection from various sources and ensuring consistency of findings. Yin (2009) argued that multiple sources of evidence foster research quality through data corroboration and developing converging lines of inquiry.

4. QUANTITATIVE FINDINGS

Introduction

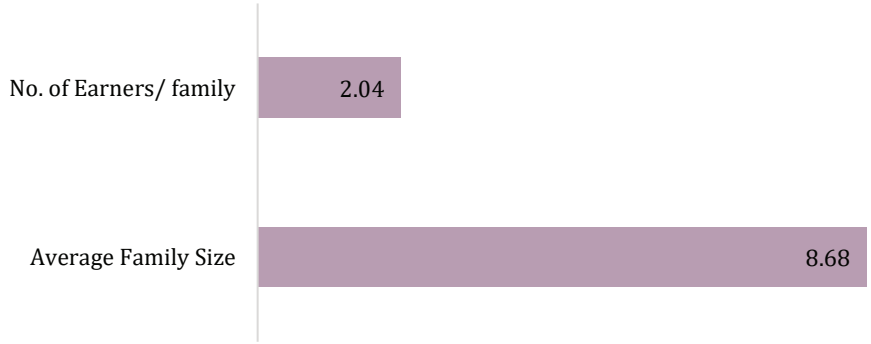
This section presents the quantitative results based on the youth and employer survey. The youth survey findings revealed the diverse nature of youth unemployment in Balochistan, which is discussed in the sub-sections. Second, the findings of the employer survey focus on the demographic characteristics of respondents, landscape,

and perceptions of employers regarding employee job potential; reasons for job rejection and applicant skills; and educational institutions and youth employment prospects—observing organisational preferences on employees' qualifications and skills, and other salient issues.

Respondents' Demographic Characteristics

This youth survey included a total of 101 respondents, consisting of 56 females and 45 males. The participants were primarily from urban areas, with two-thirds living in cities and one-third residing in rural areas or small towns within Balochistan. In particular, 78 of the youth respondents lived in Quetta, the capital city of Balochistan, which offers the most job opportunities in both the public and private sectors. Accordingly, many young people from other parts of Balochistan migrate to Quetta in search of employment. Thirty-nine per cent of females and 32 per cent of males reported working in cities different from their places of origin.

Figure 1: Youth Survey Results on Average Family Size and Earners Per Family



Source: Authors' computations.

Survey data reflected that a substantial percentage of unemployed male youth were engaged and planning to get married as there is a cultural belief that marriage would bring them luck in finding employment. Furthermore, 25 per cent of married men reported that their spouses were pursuing education, while 50 per cent of married respondents mentioned that their spouses were either self-employed, engaged in family work, or actively seeking jobs. Most respondents lived in joint families, and 25 per cent resided in extended families (with aunts, uncles, and grandparents) with a substantial number (10-45) of family members. Figure 1 reflects the average family size and number of earners per family. On average, excluding those in extended families, the family size was 6.38, and the average earners per family were 1.73.

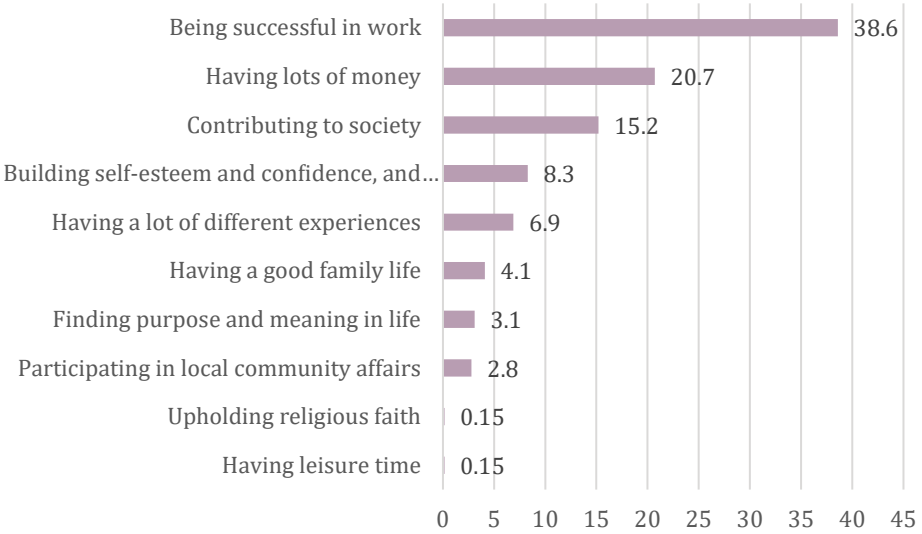
The respondents indicated that decisions about their field of education were influenced by their personal choices as well as their parents and families' preferences. The survey revealed that academic institutions in Balochistan provided minimal career counselling to students. Regarding employment, 80 per cent of the respondents were engaged in paid work, while 20 per cent were involved in voluntary work. The data suggested a disconnect between academic institutions in Balochistan and the job market as students were not provided with sufficient work opportunities while pursuing studies. Those who were employed were mostly engaged in family enterprises.

Opinions and Aspirations

The youth survey findings regarding the opinions and aspirations of young individuals in Balochistan revealed that 81 per cent of respondents stressed the importance of a university degree for securing decent jobs, with

nearly 40 per cent of unemployed graduates believing that obtaining a higher degree was essential for better job prospects. Most respondents expressed a strong desire for professional success, with aspirations ranging from achieving wealth to making positive contributions to society. Leisure and religious beliefs played less prominent goals in their lives. Youth consistently prioritised IT and communication skills as the most crucial employability traits, while general education and apprenticeships were considered less vital. Furthermore, a noteworthy observation is that approximately half of the interviewed youth aspired to start their businesses, in contrast to the common perception held by academia and policymakers, who often assume that government jobs are the primary preference among youth. However, a sizeable 27 per cent of the respondents indeed expressed an interest in working for the government.

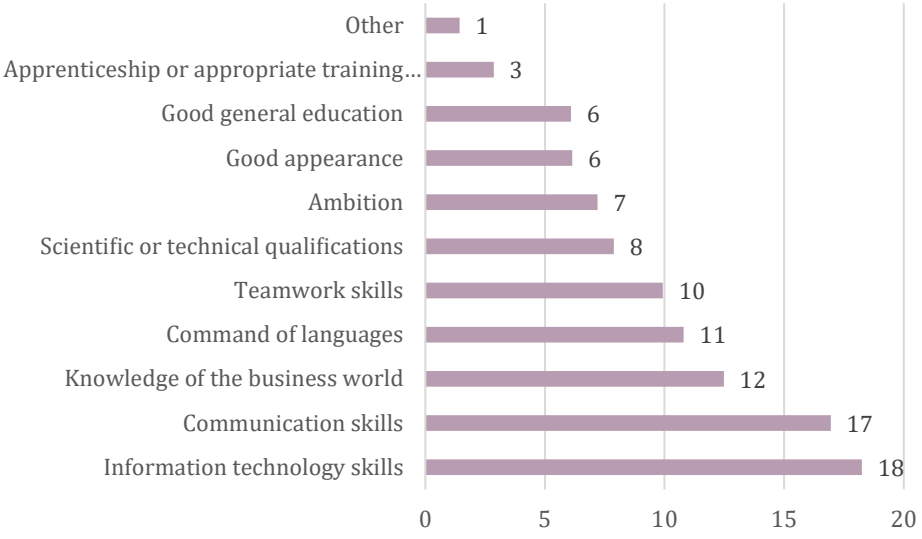
Figure 2: Goal in Life (%)



Source: Authors' computations.

As reflected in Figure 2, most youth wished to be professionally successful. One-fifth of youth wished to be very rich, and one-seventh of youth wished to positively contribute to society. In particular, youth did not rate leisure and upholding religious beliefs as important goals in their lives.

Figure 3: Youth Survey Results on Employability Skill Rating by Youth (%)



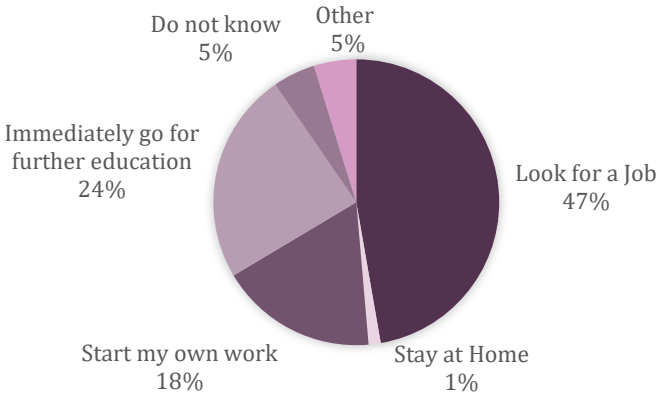
Source: Authors' computations.

Figure 3 reflects that youth considered IT skills, communication skills, and practical knowledge of the business as the most important employability skills. Conversely, general education and apprenticeship were perceived as the least important skills.

Youth in Education

The youth survey findings regarding the youth in education in Balochistan show that 50 per cent of graduates expressed a desire to establish their businesses under ideal circumstances and only 18 per cent intended to become entrepreneurs. A significant portion of the youth planned to pursue employment immediately after graduation, with a mere 1 per cent, primarily females, indicating a preference to stay at home. Approximately 57 per cent of recent university graduates initiated their job searches during their final semester. When job hunting, the youth predominantly relied on educational and training institutions and job fairs. Those inclined towards entrepreneurial endeavours actively sought financial assistance, while those already engaged in businesses tended to obtain resources from friends and family.

Figure 4: Youth Survey Results on Post Graduation Plans



Source: Authors' computations.

Figure 4 shows that 47 per cent of graduates wished to look for a job after graduation, while 18 per cent wanted to be entrepreneurs. One per cent of the youth, all females, had no plans and preferred to stay at home after graduation.

Balochistan Job Market

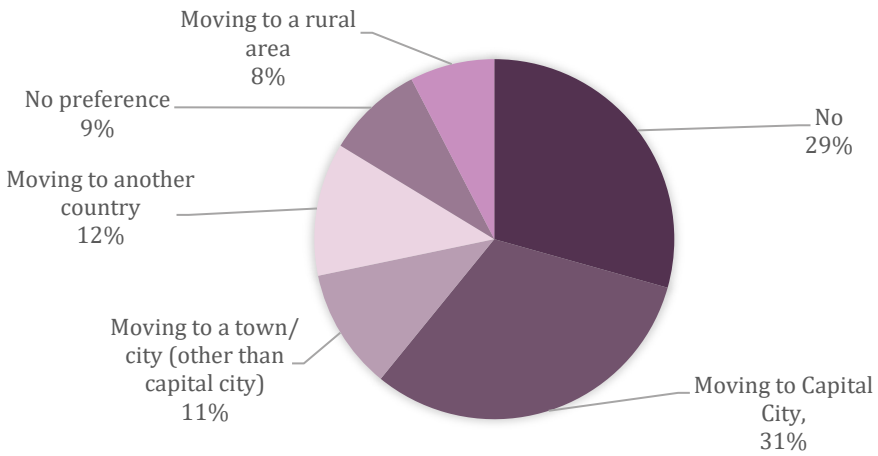
Job Market Perceptions:

According to the youth survey, a striking 80 per cent of respondents believed that the job market in Balochistan was limited and offered inadequate opportunities for university graduates, especially in terms of positions that match their qualifications. Graduates seemed to perceive the local job market as being constrained in its capacity to provide them with suitable employment. Moreover, the youth survey findings also indicate that the youth in Balochistan tended to prioritise practical skills over formal education. Nearly half of the respondents expressed a preference for technical education and employable skills, as they perceived these as more relevant for securing their career goals. As a result, upon graduation, a significant 72 per cent of the respondents planned to either secure employment or start their businesses. Financial constraints appeared to be the leading challenge when it comes to launching businesses or enterprises, though limited skills, knowledge, awareness, lack of mentorship, and opportunity also play pivotal roles in this context.

Migration Perceptions:

There is a noticeable gender-based trend when it comes to migration perceptions for job-related reasons. While most students from Balochistan tended to search for job opportunities within the province, it is intriguing to observe that a significant proportion of those who explored job prospects outside Balochistan were female. Male respondents often cited family obligations as a primary factor influencing their preference to work near their families. Conversely, females expressed a desire to leave Balochistan to attain an improved quality of life, often associated with greater independence and personal freedom. Another aspect is the influence of educational experiences on perceptions of job prospects.

Figure 5: Youth Survey Results on Willingness to Migrate for Work

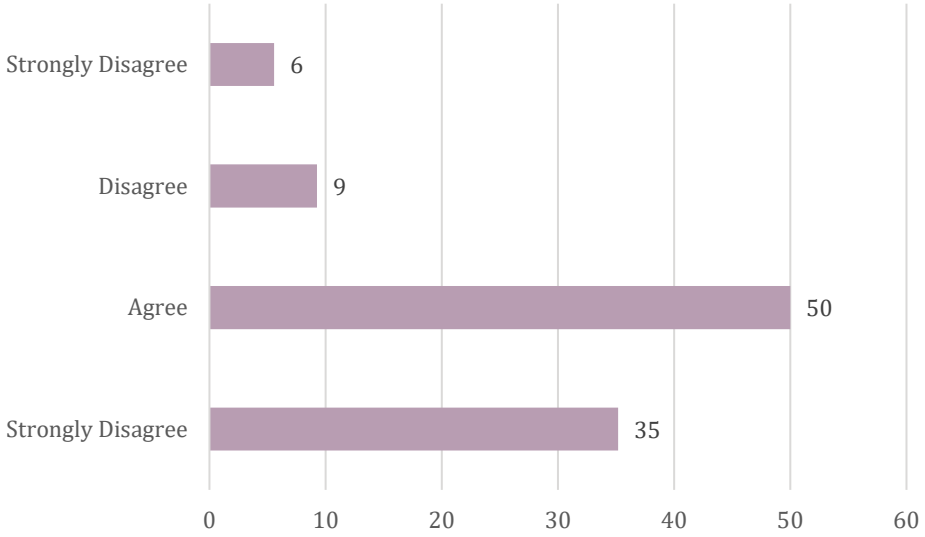


Source: Authors' computations.

Figure 5 reflects that 29 per cent of respondents were not willing to migrate for work and 9 per cent had no preference. 31 per cent were willing to move to the capital city and 12 per cent were willing to move to any city/town. Only 8 per cent of respondents were willing to move to the rural areas of the country for work reasons, which is due to poor digital connectivity and communication services in rural areas.

Among the respondents, 21 per cent had studied outside of Balochistan at some point. Of those who have had this experience, a substantial 70 per cent were willing to work outside Balochistan. This finding highlights the positive correlation between having studied outside Balochistan, especially in other provinces, and the belief in better job opportunities compared to individuals who have never had the chance to do so. Furthermore, this survey indicates that a portion of the youth were unwilling to migrate for work, while others expressed preferences for specific locations. There is a noticeable reluctance to move to rural areas, primarily due to issues related to digital connectivity and communication services in these regions.

Figure 6: Youth Survey Results on Job Prospects Perception if Studied Outside Balochistan (%)



Source: Authors' computations.

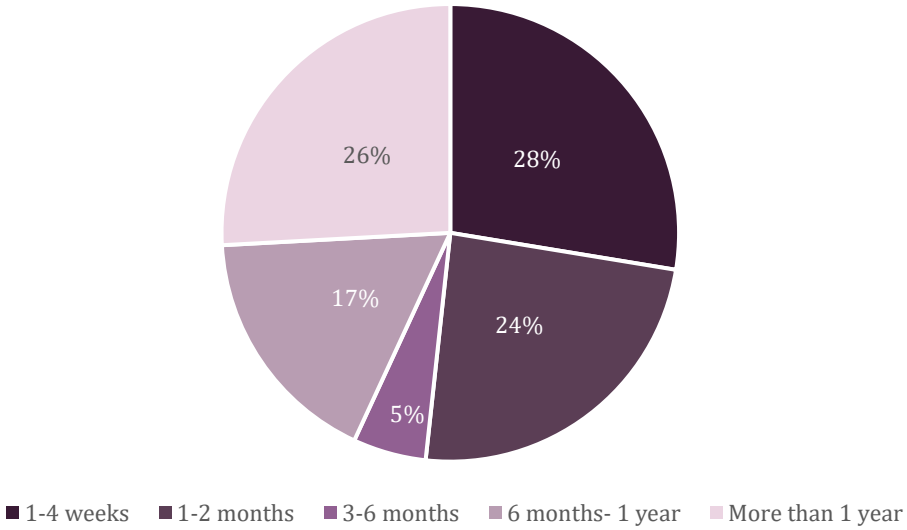
Figure 6 shows that youth who never studied outside Balochistan believed that their job prospects would have been better if they had studied outside Balochistan at any stage of their careers. Further, individuals who studied outside Balochistan (in other provinces) strongly agreed that their job prospects were better compared to students who had never studied outside Balochistan.

Other Trends:

The youth survey demonstrates that despite the aspirations to obtain employable skills, there was a visible trend of youth not actively seeking employment or business opportunities, with only a third of the respondents having made recent efforts in this regard. This relatively relaxed pace in pursuing livelihoods seems to be influenced by the robust family support structure. Educational institutions are seen as the primary channels through which respondents anticipate securing employment, underscoring the significance of fostering closer connections between academia and industry. However, the findings also reveal that many graduates lack a clear sense of direction regarding the nature of work they intend to undertake post-graduation.

The survey further highlights varied durations of unemployment, with up to 45 per cent of graduates finding employment within 4-12 weeks, while others remained unemployed even after a year following graduation. Graduates expressed a clear preference for technical, administrative, and managerial roles, displaying a reluctance to engage in clerical or menial jobs. A substantial number of graduates had turned down job offers, primarily due to uninteresting work and inconvenient locations, reflecting the region's inadequate infrastructure. Some graduates, though, were willing to compromise for higher wages, job security, or roles that aligned with their qualifications, while others maintained specific expectations about their employment.

Figure 7: Youth Survey Results on Unemployment Since Completing Education



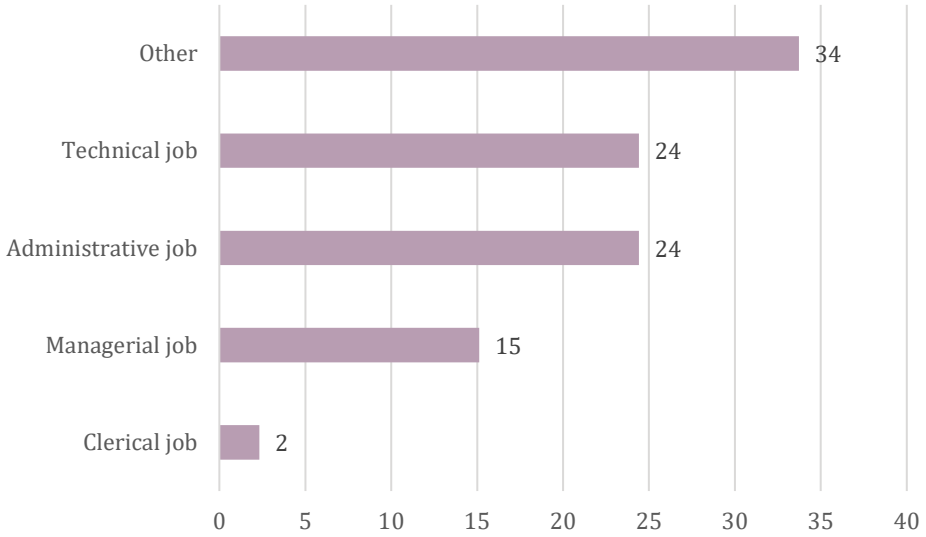
Source: Authors' computations.

Figure 7 indicates that youth who were unable to find a job in 3 months ended up unemployed for a longer duration and 26 per cent of graduates were unemployed even a year after graduation.

Income expectations among respondents varied widely, with some willing to accept wages below minimum standards, driven by their status as students who had migrated to cities for higher education and required such income for their city life. Additionally, a significant proportion of graduates were willing to work for salaries under PKR 50,000 per month, while a smaller fraction expected substantial earnings, above PKR 100,000 monthly.

The survey also highlights the need for increased guidance and assistance in employment and job-seeking activities, as a significant portion of the respondents reported not receiving adequate advice in these areas. When unemployed, the youth in Balochistan engage in diverse strategies, including further education/training, continuing job searches, starting businesses, or volunteering.

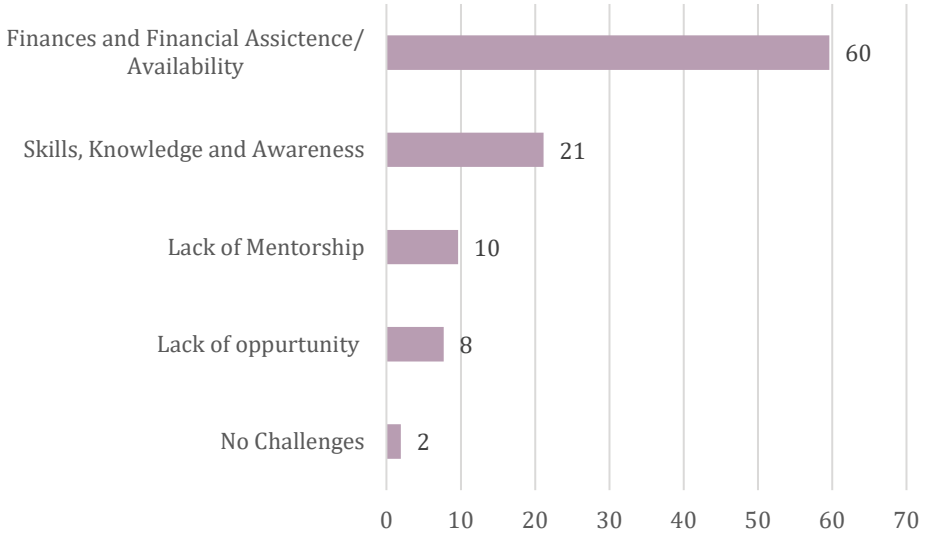
Figure 8: Youth Survey Results on Types of Job Graduates Search (%)



Source: Authors' computations.

Figure 8 reflects that graduates preferred to undertake technical jobs, followed by administrative and managerial jobs. Survey responses reflect that what graduates did not want was to undertake clerical jobs or menial work in offices.

Figure 9: Youth Survey Results on Challenges in Starting Own Enterprise (%)

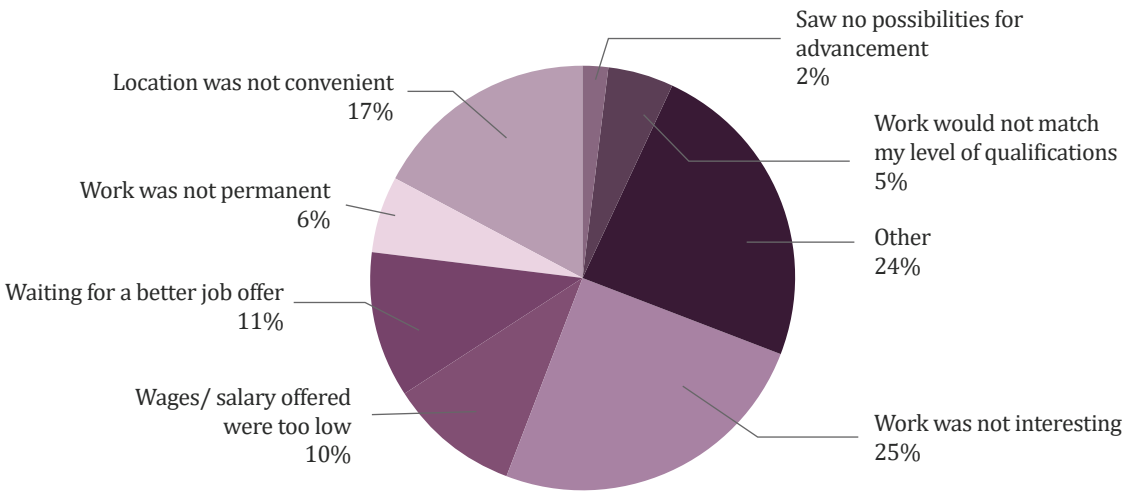


Source: Authors' computations.

Figure 9 shows that the availability of financial opportunities turned out to be a single major factor that youth faced in starting a business/enterprise. Limited skills, knowledge, awareness, lack of mentorship, and lack of opportunity were other important factors.

Additionally, survey responses suggest a somewhat casual approach when it comes to job applications and interviews, with a significant number of respondents yet to submit applications or attend interviews. Some respondents were focused on preparing for competitive exams, especially the Public Service Commission exam. In terms of challenges faced by youth in securing employment, a mismatch between education requirements and the skills acquired was cited as the most significant obstacle. Insufficient work experience and a lack of job opportunities were other important factors that the youth identified as major hurdles. Issues such as poor working conditions and low wages were cited less frequently.

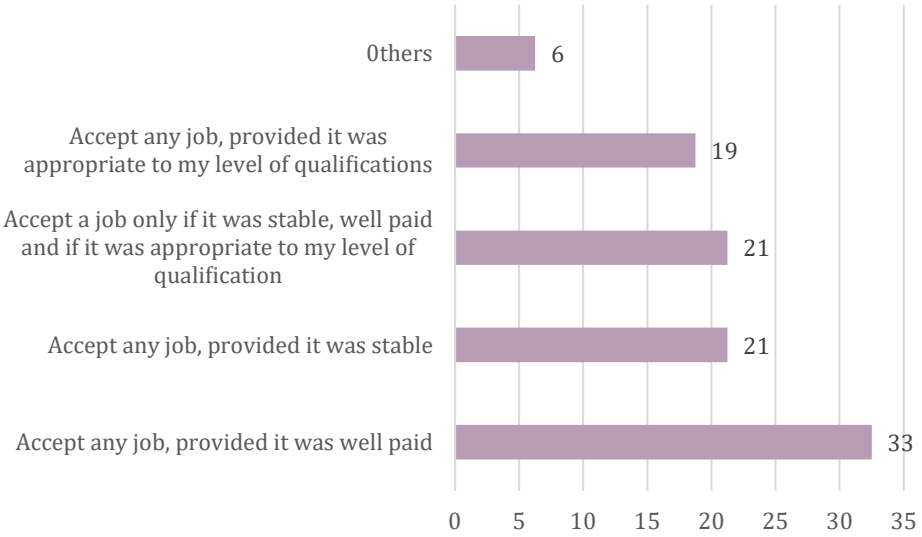
Figure 10: Youth Survey Results on Reasons for Refusing Job



Source: Authors' computations.

Figure 10 shows that the top reason for refusing a job was that the kind of work offered was not interesting, followed by an inconvenient location. Other reasons include lower wages offered, irrelevant work, temporary work, and limited to no growth.

Figure 11: Youth Survey Results on Graduates Job Acceptance (%)

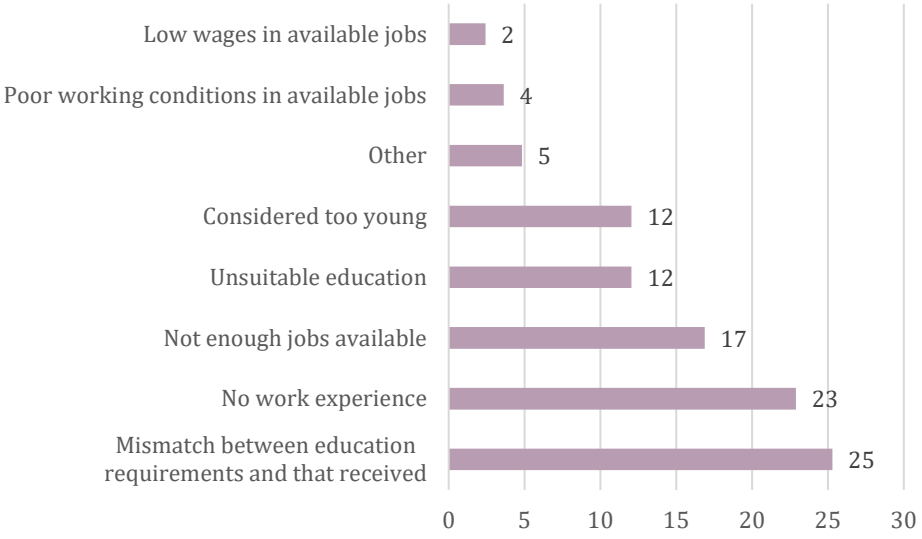


Source: Authors' computations.

Figure 11 demonstrates that one-third of graduates were most likely to accept any well-paid job. Job security was a major concern for 21 per cent and an equal percentage of graduates looked for stable jobs, but the jobs had to be relevant. Likewise, 19 per cent of respondents wanted to undertake jobs that were relevant to their education.

The importance of professional training and skills was recognised, yet respondents still valued a university qualification as the primary pathway to employment, followed by computer/IT skills and foreign language proficiency, particularly English. Moreover, apprenticeship with employers was viewed favourably by a significant portion of respondents, though some remained indifferent to the apprenticeship's significance in securing employment. Furthermore, computer and IT skills were considered important by 60 per cent of respondents for obtaining desired jobs, while professional training was rated similarly by 53 per cent. 29 per cent considered the role of knowing a foreign language, especially English, critical, while others were indifferent to its significance.

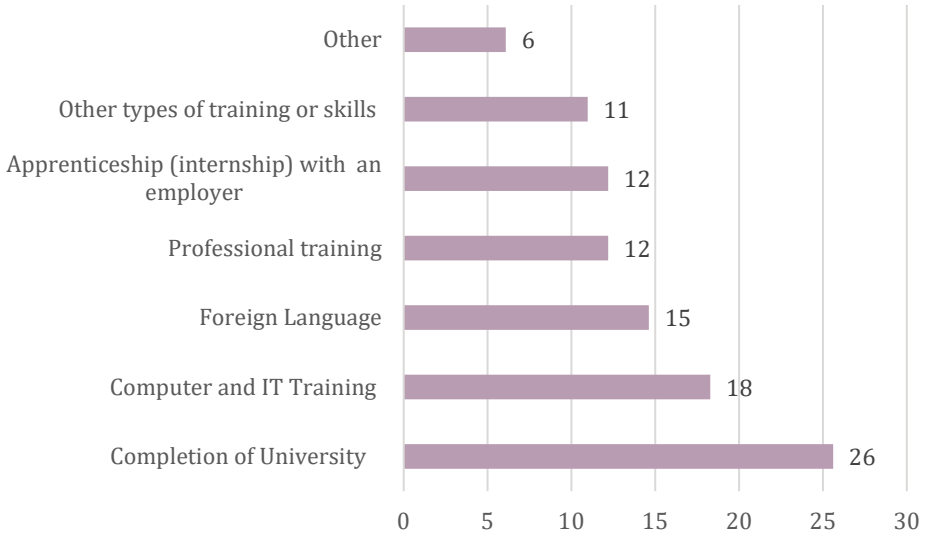
Figure 12: Youth Survey Results on Main Obstacle in Finding Good Job (%)



Source: Authors' computations.

Figure 12 illustrates that a mismatch between education requirements and attainment turned out to be the major obstacle in finding good jobs for youth. Likewise, no work experience and not enough jobs were other important factors that youth identified as major obstacles.

Figure 13: Youth Survey Results on Most Important Training for Acquiring Job (%)



Source: Authors' computations.

Figure 13 indicates that even though youth classified professional training and skills as crucial for employability, they still felt that university qualification was the most important training for acquiring a job, followed by computer/ IT skills, and knowing a foreign language, which is English in the case of Pakistan. Most of the youth believed that a university degree helps them the most in acquiring a good job.

Employer Survey Findings

Demographics, Landscape, and Perceptions

The employer's survey consisted of thirty-eight respondents who were either employers or their representatives, primarily mid-professionals in their respective organisations, often from the HR department. The average age of these respondents was 33, of which 15 were female, suggesting an evolving trend where females are achieving mid-career positions and may play leadership roles in these organisations in the coming years. The average age of the enterprises represented was 23 years, primarily influenced by the presence of banking and government institutions, with the average age of private sector enterprises being notably lower at 10 years.

In terms of the organisational landscape, the government sector is the dominant presence in Balochistan, followed by private local enterprises. Family businesses, foreign enterprises, and other organisational types also hold substantial representation, along with the presence of non-profit organisations in the region. On the contrary, the industrial landscape in Balochistan reflects a relatively poor industrial base and limited activity in the mining, utilities, and services sectors. Conversely, sectors like agriculture, hunting, forestry, and fishing have a notable presence. The banking, construction, and telecommunication sectors are doing significantly better in the region.

Employee-related issues for organisations in Balochistan were primarily linked to a lack of motivation and

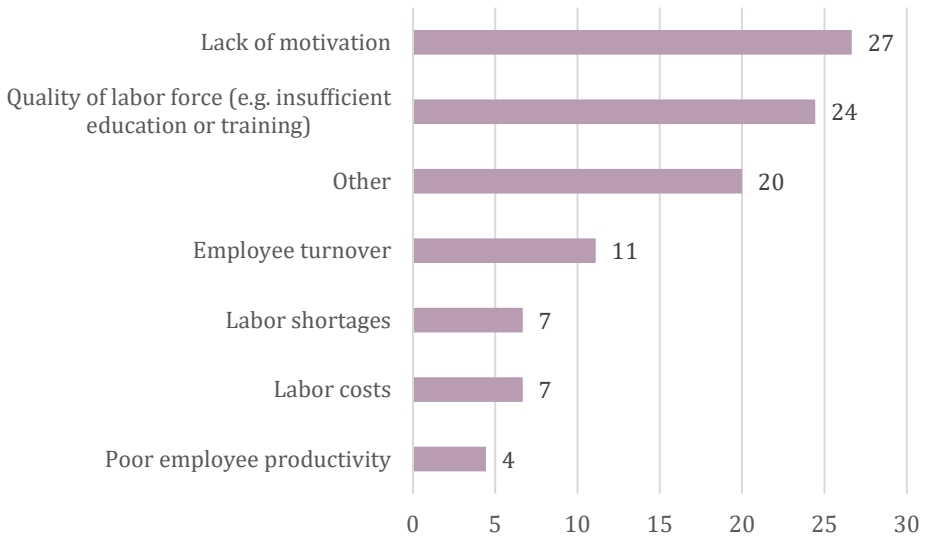
concerns about the quality of the labour force. Notably, poor employee productivity, labour costs, and labour shortages were not major concerns for most firms operating in the region. Low employee turnover may be attributed to limited job-switching options within Balochistan, along with a substantial influence of the government in this employment landscape.

Recruitment preferences revealed that two-thirds of enterprises preferred to hire youth, while 26 per cent favoured adults and 8 per cent expressed no specific age preferences. Furthermore, during the hiring process, 76 per cent of enterprises indicated no gender preference, while 19% favoured male workers, primarily in the private sector, and 5 per cent preferred female workers, notably in NGOs and education/health sector organisations. Employers in Balochistan expressed a strong preference for hiring applicants from within the region, with 96 per cent indicating a preference for candidates from Balochistan. Reasons cited for this preference include limited opportunities for local youth, a desire to provide opportunities to them, a better understanding of the local society and culture, the need for individuals who are comfortable working in rural areas (especially for NGOs), and recognition of the rights of local youth, provided they are equally competent.

Employers also expressed a preference for youth from Balochistan who had studied outside the region because of assumed better quality of education, greater exposure, well-groomed, energetic, confident, and motivated. Additionally, some employers indicated a preference for more capable and skilled individuals from Balochistan, regardless of the location of their educational institution, with only a small percentage favouring candidates who could speak local languages.

Employers' perception of youth job preferences reveals that employers believe that youth in Balochistan generally seek jobs that allow them to apply their skills, offer promising career paths, are well-remunerated, and are intrinsically interesting. Security in jobs that are easy to perform is also a significant preference for youth. However, fewer young job seekers prioritise higher-order preferences such as independence and a role in decision-making. Moreover, family-friendly work environments and generous vacation packages are not highly sought after by the youth, as per employers' perceptions. These insights provide valuable information on employer expectations and preferences in the region.

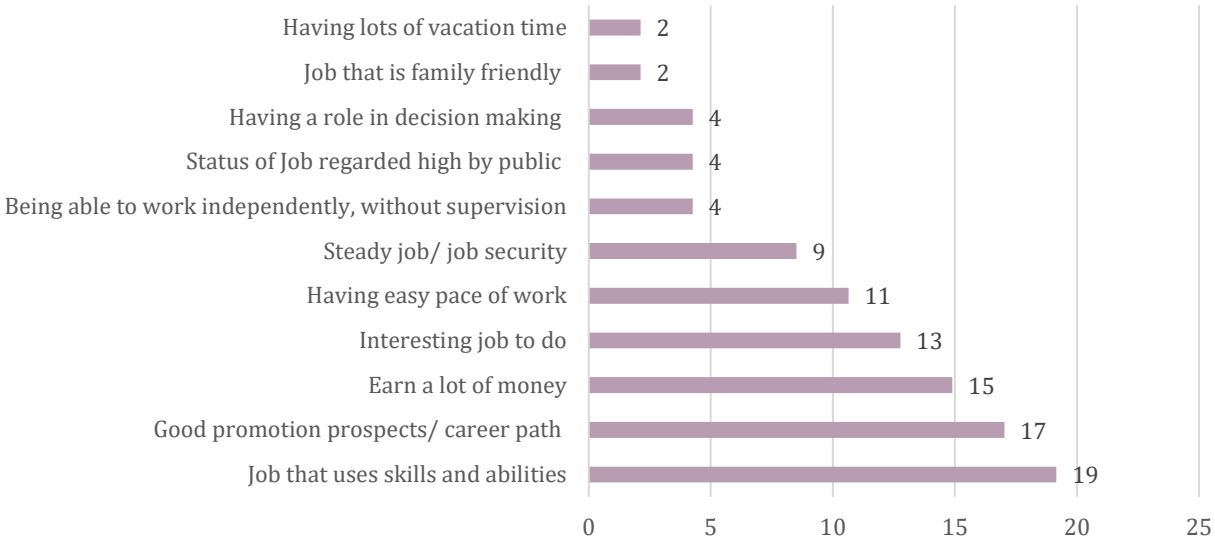
Figure 14: Employers Survey Results on Employee-related Issues (%)



Source: Authors' computations.

Figure 14 reflects employers' perception of employee-related issues and shows that the lack of motivation and quality of the labour force turned out to be major employee-related issues. Poor employee productivity, labour costs, and labour shortages were not major issues for most firms operating in Balochistan. Low employee turnover could have been due to limited options for switching jobs in Balochistan, along with the large influence of the government.

Figure 15: Employers Survey Results on Employers Views of Youth Job Preferences (%)



Source: Authors' computations.

Figure 15 captures the employers' view of youth's job preferences. According to the employers, youth prefer jobs that use their skills, offer good career paths, are well paid and interesting to do. Next, youth is moved by secure jobs that are easy to perform. Very few youth prefer higher-order preferences like independence and role in decision-making. Finally, youth do not prefer jobs that are family-friendly and offer good vacation packages.

Job Rejection and Applicant Skills

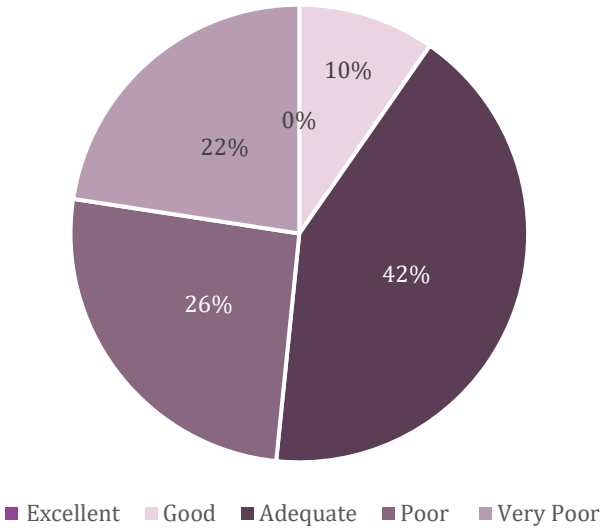
Employer survey reveals that 64 per cent of job applicants were refused positions due to "very poor" to "poor" writing skills. Applicants with excellent writing abilities were seldom denied employment, while 36 per cent of those rejected possessed "good" to "adequate" writing skills. Similarly, in terms of technical skills, employers believe that 67 per cent of rejected applications exhibited "very poor" to "poor" technical skills. Conversely, applicants with excellent technical proficiency were less likely to face rejection, although 33 per cent of the denied applicants still had "good" to "adequate" technical skills.

Regarding oral communication, employers asserted that 64 per cent of candidates who were turned down for jobs had "very poor" to "poor" oral communication skills. In contrast, applicants boasting excellent oral communication skills were typically successful in securing employment, leaving only 36 per cent of those rejected to possess "good" to "adequate" oral communication abilities. Employers identified the breadth of educational training as another key determinant, with 58 per cent of rejected applicants perceived to possess "very poor" to "poor" training breadth. Applicants with excellent educational training breadth rarely face rejection, but 42 per cent of rejected applicants were deemed to have "good" to "adequate" educational training breadth.

Furthermore, employer responses indicate that 70 per cent of denied applicants could not apply knowledge,

falling into the "very poor" to "poor" range. Applicants with excellent knowledge application skills seldom encountered rejection, but 30 per cent of those refused jobs demonstrated "adequate" to "good" knowledge application capabilities. Employers also highlighted the significance of job commitment and discipline as 61 per cent of rejected applicants were believed to exhibit "very poor" to "poor" levels in these areas. Those with excellent commitment and discipline tended to avoid rejection, although 39 per cent of job applicants denied positions exhibited "good" to "adequate" levels in this regard. These findings underscore the pivotal role that diverse skills play in the job application process and their substantial influence on employment outcomes.

Figure 16: Employers Survey Results on Job Rejection and Applicants Overall Skills



Source: Authors' computations.

Figure 16 shows that 48 per cent of applicants denied a job had very poor to poor overall skill sets. Likewise, 42 per cent of applicants denied jobs had an adequate overall skill set. On the contrary, only 10 per cent of applicants denied jobs had a good overall skill set. Importantly, employers reflected that no applicant with an excellent overall skill set was denied a job.

Educational Institutions and Youth Employment Prospects

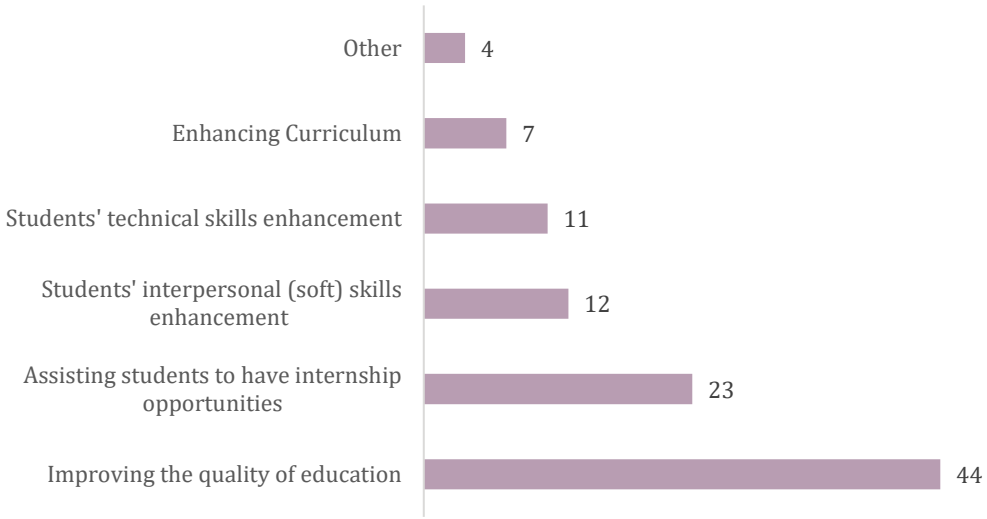
In the context of educational institutions and youth employment prospects in Balochistan, the employers' survey underscored the urgent need for universities to enhance the quality of education, with a particular focus on refining the quality of instruction. Employers also recommended facilitating internship opportunities for students to bridge the gap between academia and the job market. Soft skills development and the improvement of technical skills are also important areas for universities to address. In addition, employers expressed less concern about curriculum enhancement, which is an area that academia often emphasises.

When employers were asked about their perception of the quality of education and training provided by universities and colleges in Balochistan, 44 per cent strongly disagreed or disagreed, while 30 per cent strongly agreed or agreed with the statement. This reflects a divided opinion regarding the effectiveness of local educational institutions. However, when considering universities and colleges outside Balochistan, only 11 per cent of employers disagreed with their comparatively better-quality education and training, with a substantial 76 per cent strongly agreeing or agreeing. Moreover, employers' perspectives on the performance of youth with

technical education compared to university graduates indicate a preference for technical education, as 51 per cent agreed with this statement. While 30 per cent remained indifferent, 8 per cent disagreed, and 11 per cent strongly disagreed. Overall, employers' responses emphasised the significance of technical education in the job market.

Employers in Balochistan also highlighted several challenges in the labour market, notably the low-level skills and insufficient technical proficiency of the labour force. In addition, they considered wage rates to be low and reported a lack of opportunities for capacity building and human resource development within organisations. Furthermore, employers identified issues with workplace environments, inadequate employee appraisal systems, and unsuitable job timings. A lack of motivation and trustworthiness/responsibility among workers were also the concerns that employers raised.

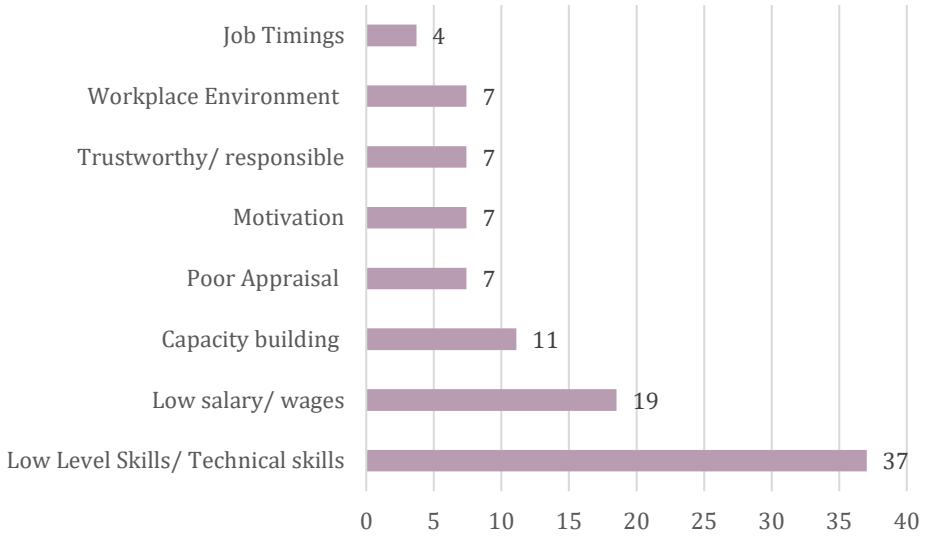
Figure 17: Employers Survey Results on How Can Universities Enhance Youth Employment Prospects (Percentages)



Source: Authors' computations.

Figure 17 shows the employers' opinion of universities. The majority of employers said that universities should focus on improving the quality of education, followed by assisting students with internship opportunities. They also suggested that universities must focus on students' soft skills and enhancement of technical skills. Curriculum enhancement turned out to be of least concern for employers. Interestingly, it is a factor that comes under frequent discussion in academia.

Figure 18: Major Labour Market/Labour Issues (%)



Source: Authors' computations.

Figure 18 shows that a major issue identified by employers in the labour market was the low-level skills or lack of technical skills among the labour force. Moreover, employers believed that the wage rate was low. Organisations did not offer capacity building/human resource development opportunities. Furthermore, employers said that the workplace environment was compromised, employee appraisal systems were poor, and job timings were not preferable. Employers also reported that the workers were not motivated or trustworthy/responsible.

In conclusion, the nature of unemployment in Balochistan reflects a complex nature influenced by a range of demographic and socio-economic factors. The quantitative survey data indicates a significant urban-rural divide in terms of employment opportunities, with many young people from rural areas migrating to urban centres, like Quetta, in search of work, given its prominence in providing job prospects. The cultural belief that marriage could bring luck in securing employment also underscores the complex nature of youth unemployment. Moreover, Balochistan's unemployment landscape is characterised by the interplay of gender dynamics, family structures, and educational backgrounds, all contributing to the intricate nature of joblessness as discussed above.

In a similar vein, the causes of unemployment in Balochistan are deeply rooted in the region's educational and economic landscape. The youth's perception of a limited local job market, particularly concerning positions that match their qualifications, underlines the mismatch between the skills acquired through education and the demands of the job market. The survey data emphasises the necessity for universities to enhance the quality of education and align it with the practical skills and technical proficiency sought by employers. The survey also highlights financial constraints and the lack of knowledge, mentorship, and opportunities as key impediments to youth entrepreneurship. Moreover, the migration patterns are indicative of the influence of educational experiences, with those who have studied outside Balochistan exhibiting a greater willingness to work beyond the region, further emphasising the role of education as a contributing factor to unemployment.

Finally, the consequences of unemployment in Balochistan extend beyond just economic hardships, with profound implications for individual aspirations, societal progress, and the region's overall development. The survey data highlights that most respondents stressed the significance of holding a university degree for securing decent employment, showcasing the strong desire for professional success among youth. The preference for practical skills and technical education over formal degrees suggests that youth recognise the need for

employability skills in the job market. However, a substantial number of graduates willing to accept low wages or engage in menial positions reflects the region's inadequate infrastructure and job opportunities, highlighting the adverse impact of unemployment on income levels and job quality. The survey findings also underscore the importance of fostering closer connections between educational institutions and the job market, as respondents indicated a lack of adequate advice and guidance in employment and job-seeking activities.

5. QUALITATIVE FINDINGS

Introduction

This section presents the qualitative findings focusing on the nature, causes, and consequences of youth unemployment in Balochistan. The findings revealed diverse aspects of the nature, causes, and consequences of youth unemployment in Balochistan. The coding scheme used to identify participants' illustrative quotes in the qualitative analysis is as follows:

- KI – Key informant
- EMP – Employer
- STD – Student

Nature of Youth Unemployment

Youth unemployment in Balochistan is a multidimensional and complex phenomenon, involving characteristics of structural unemployment, under-employment, and seasonal unemployment. Additionally, critical impediments such as the lack of productive resources, efficient and effective utilisation of natural and economic resources, and the absence of vibrant industrial infrastructure in Balochistan are exacerbating the existing youth vulnerability and making it difficult to obtain suitable employment. Thus, Balochistan has remained a traditional economy and most people rely on livestock and the agriculture sector. Some are engaged in trade with neighbouring countries. These sources have dried up and youth have limited opportunities. Overall, most participants noted that youth unemployment is chronic and long-term in nature owing to the dysfunctional education structure in Balochistan and the inadequate industrial sector.

Skills Deficit/Imbalance and Labour Market Capacity in Balochistan

Misalignment between the demand and supply of job-related skills and insufficient labour (i.e., supply-demand anomaly or labour market mismatch) are key determinants of long-term structural unemployment. The participants referred to varied structural unemployment challenges that are inhibiting youth from obtaining employment. A senior United Nations representative stated:

"The quality of our graduates is questionable. We are producing mediocre graduates. There are some very lucrative job opportunities out there but, unfortunately, we don't have qualified people available to take those roles" (KI-1)

EMP-7 noted that:

"We are providing very good theoretical education, however, unfortunately, this is not relevant to practice. I believe that if there is a blend [subtle balance] between these two, there are a lot of opportunities in the job market. Organisations have jobs for youth but there is a missing link between theoretical knowledge and real-world practice."

Further, KI-1 questioned the inappropriate spending of the provincial budget, and the way financial resources are diverted away from the development of social capital and spent on the construction of buildings.

"The PSDP [Public Sector Development Program] must be HR-centric; 98 per cent of the PSDP is going into construction, and we do not focus on skill enhancement and training, etc. Even the money allocated for social development is spent on school construction, constructing boundary walls, repairs, and all that. So, we need to seriously review and revisit the PSDP to understand why human development is not happening. We need to bring skills enhancement to the forefront. I understand that we focus more on specializations at the university level, but I believe that we need to pick something at the polytechnic level and job placement centres need to be more focused." (KI-1)

One of the vice-chancellors commented on the relationship between youth unemployment and the prevailing economic circumstances of the province. The participant remarked:

"The size of Balochistan's economy is too small to absorb the youth bulge into jobs. We are producing a lot of graduates, but the market cannot absorb it."

KI-2 remarked on the education quality and a lack of focus on soft (interpersonal) skills development in the higher education sector:

"Institutions' [academic] quality is not good. Higher education institutes (HEIs) are doing a good job with hard skills but our youth lack soft skills in Balochistan. Nonetheless, HEIs' focus on soft skills is limited. For example, in interviews, applicants have subject skills but fail to present themselves and their work. In the market, it is not only important to have some important skills but also how to sell those skills. Similarly, youth have no practical knowledge, unfortunately, the world is talking about metaverse or whatnot, but we are teaching dated courses to our students, which are not very useful in the practical world. For example, mining students have never gone to the mine; petroleum students have never visited a petrochemical industry."

KI-3 – a senior administrative official of one of the universities argued that:

"Education is improving in Balochistan, e.g., marine science is being introduced. Similarly, textile and chemical engineering degrees are introduced, and universities are doing a good job. However, if you check newspaper adverts, these jobs are not demanded by the market… supply is in surplus because the demand side can not generate enough opportunities. Therefore, our youth migrate to other cities and other countries."

KI-4 referred to the skills deficit problem. The interviewee asserted:

"The majority of labour in Balochistan can hardly work in technical positions and they cannot be employed in industries, even if the industry is established in Balochistan."

KI-4 further suggested that public sector educational institutes are lagging in imparting needed skills to young people and making it difficult for them to obtain employment:

"The education sector is not performing well; technical & vocational skills are missing; public sector schools are non-performing; private schools are doing better but everyone cannot afford to study there. Public service delivery in education and skill development needs to be improved in Balochistan."

KI-5 expressed his views as:

Relevant skills and training in Balochistan are not available. GIZ [German Development Agency] has done a skill-based training programme in coordination with technical training centres [TCC]. GIZ programmes too were extending conventional training, like computer programs—none of the programs were good enough to introduce

new skills that are industry-based. GIZ even offered tailored (customised) programmes. Likewise, carpet weaving skill provision was not available in GIZ training, which made sense in Balochistan. The government can only offer jobs to the 10 per cent, the remaining youth must be employed by the market. However, the market in Balochistan cannot absorb youth. In this scenario, government support is instrumental in terms of providing relevant training programmes but that is not happening as most of the current training programmes are not focusing on building relevant skills.

Additionally, KI-5 suggested that:

GIZ has a job placement training programme. Interestingly, the programme trained 500,000 people, however, only 10 per cent were able to find jobs and those too got jobs through personal efforts, not through obtaining skills via training programmes. In most areas, people were unable to find skill-based jobs in most districts of Balochistan.

KI-6 commented on the mismatch between skills demanded by the labour market and the supply of skills youth hold to perform their roles (i.e., supply-demand anomaly). The KI-6 asserted:

"Education is not demand-driven; rather, it is supply-driven. As a result, we are producing graduates, who are unable to earn jobs. In fact, universities are starting disciplines that are not demand-driven, but departments are open to accommodating certain individuals. The public is naïve and enrols in these programmes, thinking that it's a new field. However, once they graduate, they are unable to find jobs."

The KI-6 further argued:

"Universities have become teaching colleges and therefore only focus on teaching with limited to no research."

KI-9 commented that:

"Well, lack of skills is a major problem; our youth is not employable. On the supply side, we are producing too many graduates compared to what is demanded by the labour market. Similarly, CPEC has also failed to deliver thus far. Who can we hire in Gwadar as the youth is not skilled?"

Similarly, students and employers noted that youth lack job-related skills, and the job market cannot absorb the youth bulge. STD-3, STD-26, and STD-27 pointed out that universities' curricula and pedagogy are old-fashioned causing an acute skills deficit, which reduces the likelihood for youth to obtain desired employment:

"The current circumstances are daunting…the graduates lack skills and competencies; universities impart education where students are not trained or lack the required skill sets needed to do the job" (STD-3).

"Students lack skills; we don't focus on creativity, and we follow traditional learning techniques… if you have skills, you can get opportunities in other provinces and countries" (STD-26).

"We produce more graduates than the market can absorb. The private sector barely exists in Balochistan" (STD-27).

One of the employers stated that youth are eager to develop their skills, however, they must study in other provinces to acquire the required skill set.

"I have also noticed that students want to improve their skills and competencies by going to other provinces and cities. At the same time, youth is committed to returning to their province after completing their education and obtaining the right skill set and serving their province" (EMP-1).

"We are producing more graduates than what the market can accommodate or absorb. Unfortunately, students must leave Quetta to find jobs in other provinces" (EMP-4).

EMP-6 observed that holding the right skills is a key enabler to securing employment.

"Youth should focus on developing their skills and strengthening their academic profile. If they are well educated, securing a job is not a big deal."

One of the employers highlighted the importance of technology-related skills enhancement as:

"One thing I have noticed is that we don't focus on emerging trends. It is imperative to learn and develop expertise in digital technologies, digital marketing, big data analytics, and e-commerce. We need to offer degrees in these areas too" (EMP-8).

Underemployment in Balochistan

There is also the issue of youth underemployment in Balochistan as qualified youth are working in either low-level jobs or are employed in temporary or part-time roles. Thus, the potential of youth is not fully utilised, and their economic contributions remain insignificant. The KI-2 recalled:

"For a few dozen positions in the Service & General Administration Department, Government of Balochistan, I was told that 33,000 people applied for a basic level clerical position (Grade 14) and master's degree holders had applied for the job. Similarly, at [name of the university], we advertised for 2 lecturer positions in law against which more than 200 candidates applicants applied. While Law is a technical subject, which is why not many people applied, we still received 200 applications."

Similarly, KI-3 observed:

"Highly qualified people are applying for low-level jobs in government. Students mostly migrate to other cities in Pakistan who have earned technical degrees and work with small private firms for very low wages."

KI-6 suggested: *"Most youth are unable to find suitable jobs and qualified youth engage in low-level jobs; internships are limited and practical exposure is nonexistent."*

Likewise, KI-9 stated:

"Engineers are working as drivers—smuggling Iranian petrol from Iran—due to limited opportunities."

Table 1 presents a summary of qualitative findings on the nature of youth unemployment in Balochistan.

Table 1: A Summary of Qualitative Findings on the Nature of Youth Unemployment in Balochistan

Type of Unemployment	Findings
Frictional	Lack of industrial operations and weak private sector: Youth seeking employment may face frictional unemployment as they take time to search for suitable job opportunities in the limited industrial and private sector activities. Moreover, unemployed youth in Balochistan face emotional and psychological issues, such as low morale, dissatisfaction, stress, and reduced self-confidence. The combination

	of frictional unemployment (temporary unemployment during job transition) and structural unemployment contributes to these undesirable consequences.
Structural	The mismatch between the demand and supply of job-related skills in the labour market, as well as the lack of vibrant industrial infrastructure in Balochistan, contributes to long-term structural unemployment. This is evident from the inadequate training and education that fail to equip graduates with relevant skills, leading to a situation where qualified individuals struggle to find suitable employment in the region. The absence of industrial operations and the weak private sector: The lack of industrialisation and significant private sector activities in Balochistan can lead to structural unemployment as the economy does not have enough diversified sectors to absorb the labour force adequately. Youth frustration and disillusionment: The lack of suitable employment opportunities has led to frustration and disillusionment among the youth in Balochistan. There is a mismatch between the skills and aspirations of the young population and the available job options, contributing to structural unemployment. Additionally, a mismatch between skills and job opportunities leads to reduced productivity among the youth. During economic downturns (cyclical unemployment), overall demand decreases, further impacting the economic contributions of unemployed individuals.
Cyclical	Macroeconomic instability and political crisis: Economic instability and political issues in the province may contribute to cyclical unemployment as the economic conditions fluctuate, leading to fluctuations in the demand for labour. Moreover, youth unemployment in Balochistan has been linked to an increased crime rate and social unrest. Structural unemployment, with its long-term mismatch between skills and job opportunities, is compounded by cyclical unemployment during economic downturns, creating an environment where frustrated and disillusioned youth may turn to counterproductive activities. Furthermore, the lack of suitable job opportunities and economic downturns contribute to social welfare challenges in Balochistan. Structural unemployment leads to a segment of the population struggling to meet their basic needs, while cyclical unemployment during economic crises exacerbates the situation.
Seasonal	While not explicitly stated in the findings, it can be inferred that seasonal unemployment may be present in Balochistan due to the reliance on traditional sectors, such as agriculture, where employment opportunities may fluctuate depending on seasonal factors.
Technological	There is a mention of inadequate focus on technology-related skills and outdated courses, indicating that the education system may not be adequately preparing students for the demands of the modern job market. This aligns with the concept of technological unemployment, where advances in technology render certain skills obsolete and create a gap between available jobs and the skills possessed by the workforce.

	Moreover, it can be inferred that limited industrialisation and lack of technological advancements may lead to some degree of technological unemployment as industries may not adopt new technologies that could create additional job opportunities.
Voluntary	There is no direct indication of voluntary unemployment in the findings. However, the reference to youth migrating to other provinces and countries to seek better job opportunities suggests that some may voluntarily choose to leave Balochistan in search of more favourable employment prospects. Perceptions concerning corruption and lack of equal employment opportunities: Some young people may choose to remain voluntarily unemployed due to the belief that employment opportunities are limited, and the hiring process is corrupt or biased. Furthermore, talented youth voluntarily leave Balochistan in search of better opportunities elsewhere due to the lack of suitable employment options, resulting in a brain drain. Structural unemployment exacerbates the situation, driving youth to seek employment in other cities or countries.
Underemployment	Highly qualified individuals working in low-level jobs or jobs that do not fully utilise their skills point to underemployment, where individuals are working in roles below their educational qualifications and potential. The mushroom growth of higher education institutions (HEIs) and poor education quality: The rapid growth of HEIs and the lack of relevant educational programmes can lead to underemployment, where graduates are overqualified for the jobs available to them. Furthermore, some unemployed youth compromise on their career aspirations and settle for lower-skilled jobs that do not fully utilise their expertise, leading to underemployment. The mismatch between their qualifications and available opportunities contributes to this issue.

Source: Authors' compilations.

Causes of Youth Unemployment

The findings suggest that a wide range of factors contribute to youth unemployment in Balochistan including a lack of industrial development and a weak private sector, inadequate support for females, youth perception of corruption and lack of equal employment, ineffective provincial leadership, failure in policy development and implementation, the mushroom growth of higher education institutes (HEIs) and poor education quality, insufficient career counselling, apprenticeship opportunities, and industry-academia linkages, and issues related to macroeconomic stability and political crisis.

Absence of Industrial Operations and Inadequate Private Sector Activities

Industrialisation and a vibrant private sector foster sustained economic development and create employment opportunities. However, the findings reveal that inadequate industrialisation and insignificant private sector activities in Balochistan are major issues constraining youth from securing employment and actively participating in formal economic activities. There seems to be a consensus among key informants, employers, and

students that the absence of industrial operations and insufficient private sector activities are major drivers of youth unemployment. Accordingly, young people are primarily focusing on seeking government jobs. The KI-1 argued:

"One thing we need to understand is that government cannot accommodate everyone in government jobs."

KI-2 referred to youth being attracted by relaxed work settings in government institutions and preferring to work in such an environment.

"People in Balochistan work to live and not live to work; everyone wants a government job because the work is relaxed in government jobs."

KI-3 asserted there is a perception among youth that government jobs are ideal, and the family forces young people to look for government positions.

"Government jobs are idealised and the youth are pushed to apply for government jobs. However, the government can hardly absorb 10-15 per cent of youth. The mindset is an issue, which is formed at home."

KI-4 expressed views as:

"The private sector is minimal, and youth look for government jobs. However, the public sector cannot employ the youth bulge. There is a perception that there is an ongoing law-and-order situation, which is often blamed for low industrialisation in Balochistan, but that is not true. Security was never a problem in Northern Balochistan and Eastern Balochistan, but still industries never flourished even there."

KI-5 posited that:

"The existing industries are all small and there are no more than 1,000 units. These units are all small-scale, even a medium-level enterprise cannot be found. These industries in Balochistan have on average 10-15 employees (mostly cottage industry), and employing more people is beyond their capacity. The industrial base is missing, which is causing the youth unemployment crisis in Balochistan."

KI-8 pointed out that young people are obsessed with public sector employment:

"People of Balochistan have a cultural issue, i.e., they just want to end up doing a government job. Educational Institutions must advocate and promote entrepreneurship and create an environment where youth can engage in job creation."

KI-8 suggested that:

"Another issue is behavioural—most people want to be free riders; they treat government jobs as a security of income and that too without doing much work."

KI-9 commented that:

"The mindset in society is that the best HR must seek government jobs; there is no trend of seeking private sector jobs. Even if opportunities are made available, students do not take much interest, mainly because they want to end up doing a government job. Therefore, they are not interested."

KI-10 noted that:

"Well, we don't have a considerable industrial base in the province; employable opportunities are limited; Reko Diq

and Saindak were outsourced to foreign companies; [unfortunately] a limited number of locals are employed in these projects."

Students also noted similar concerns regarding the lack of industries in the province. STD-1, STD-7, STD-11, STD-14, STD-18, SDT-26, and STD-30 noted that due to limited job opportunities young people are migrating to other places. Nonetheless, relocating to other areas is not feasible for everyone because of family commitments and other reasons:

"Graduates must move out to other provinces and cities. However, some graduates can't leave (migrate) due to family commitments; they can't leave the city or the province".

"We have limited job opportunities due to inadequate private companies and industrial sector. In the case where industries are present, such as mining, they can only offer jobs to specialised graduates" (STD-7).

"There is a lack of enabling environment for industrial growth and new start-ups" (STD-11).

"There is limited support available and very few opportunities for entrepreneurship. We need free tax areas, good infrastructure, and electricity. All these issues are important for boosting investment in the province. Once these issues are addressed, people will be able to find decent jobs in Balochistan" (STD-18).

In a similar vein, employers referred to the issue of a weak industrial base and the presence of the private sector in the province. Employers including EMP-1, EMP-3, EMP-4, EMP-6, and EMP-8, attributed youth unemployment to poor industrial development in the province.

"The private sector did not flourish due to the ongoing security situation in the province" (EMP-1).

"The fundamental issue is the lack of industries in Balochistan and limited employment opportunities in the private sector compared to other provinces." (EMP-3)

"We don't have industries, the private sector is not active except for the banking sector, and there are limited government jobs." (EMP-8)

Cultural Taboos and Tribal Setup: Female Participation in and Contributions to Formal Economic Activities

Balochistan is predominantly a tribal and conservative society with limited female labour force participation in formal economic activities. Most females are engaged in unpaid care and domestic work supporting families and their male counterparts; however, as such their economic contributions are acknowledged. The participants shared different perspectives regarding female education, empowerment, and employment contributions. While some participants argued that cultural norms are changing and families are supportive of female education and employment, others highlighted a range of issues encountered by females regarding equity in education and employment opportunities.

KI-1 noted that while in the past females were not supported in education and employment domains, currently female participation in the labour market is encouraged and gender disparity is gradually declining. Accordingly, things are improving but there remain numerous challenges inhibiting females from effectively contributing to economic activities in the province.

"One very encouraging thing is that the myth is broken, which is positive that even tribal families now allow their girls to go out and earn money. However, we don't see any proactive measures on the part of the government to facilitate girls… no incubation centres can be seen for females… we don't have daycare centres and washrooms for the female staff."

Similarly, KI-1 argued that females are not preferred by employers due to varied issues such as maternity leave.

"Females are not preferred by employers mainly because they avail more leaves and there is a cost attached to hiring females. There is a stigma as well in our society. Even though government rules are very clear, it is very unfortunate that women must give bribes to get maternity leave. Additionally, there is an element of patronisation. Some male colleagues tell female employees that they [male colleagues] would take care of their responsibilities in case they [female employees] need to leave the office, but, at the same time, female employees are blamed for inefficiency and lack of responsibility."

In addition, KI-1 pointed out shortcomings in the budgeting aspects relevant to the female workforce:

"We do not see gender-responsive budgets; we still construct gender-blind budgets. For instance, we don't have ramps for disabled people or washrooms for disabled people and females. All these issues are important other than salaries."

KI-2 asserted that:

In the formal economy, the role of females is very limited. Conversely, in the informal economy, the role of females is massive, but it is not recognised, such as raising kids, working at home or farm, contributing to the family, etc. Unfortunately, such roles are not recognised at the international forums, and we don't value such contributions. To recognise that role and contributions, we need to work hard and provide an enabling environment. For instance, we are not doing anything special for girls; we need to support and facilitate girls coming from remote areas of Balochistan.

KI-2 further noted that:

"Families, too, are not very supportive of the females (e.g., a conducive working environment for females should be provided, no harassment at the workplace, day-care centres, good hostels, good transportation – these hurdles must be removed)"

KI-6 posited that females have a critical role in the informal economy and their contributions are multi-dimensional in Balochistan's context, nonetheless, such contributions are not recognised.

"Females do contribute to the economy. In Baloch areas, women do most of the work, whether in fields or at home. Informally, women are doing significant work in Balochistan. However, their exposure to formal jobs is limited. Even in Pashtun areas, women perform a significant amount of work at home and in the field. In the formal sector, women cannot work due to tribal and cultural taboos. However, things are changing now. The public in far-flung areas has always demanded quality girls' primary schools."

KI-8 argued that:

"Females have a crucial role in society. Intellectually, girls are equally competent or even better. However, girls are not given equal value at home and girls are not given priority. [Hence], a suppressed female, who is also responsible for raising a generation, passes on the negativity to the next generations."

Additionally, KI-8 pointed out that:

"[There are] limited options for girls; families want them to become either teachers or doctors; other avenues are not explored. Culturally, families do not prefer females to work in a mixed-sex environment."

Some students, particularly females, pointed out a lack of support from families for females to study in HEIs. Social/cultural norms act as a key barrier for females to obtain higher education and engage in paid employment.

In this regard, STD-4 and STD-15 asserted:

"Family support is imperative for females to acquire education and job. Social norms, as well as conventional/orthodox thinking and culture in Balochistan, sometimes create barriers for females to obtain education and avail job opportunities." (STD-4)

"I belong to a place where girls are not encouraged to study. Generally, in backward areas, families support and encourage boys to obtain higher education. It is important that families should believe in equality and encourage females to enrol in higher education". (STD-15)

Youth Perceptions Concerning Corruption and Lack of Equal Employment Opportunities

Most interviewees were concerned about corruption and discrimination, as well as a lack of fairness and undue political influence in the recruitment and selection process followed by government institutions. There is a perception among young people that malpractices practices such as nepotism and favouritism are common phenomena and employment is granted to close friends and family members. Government jobs are often awarded based on bribes and patronage, thus undermining equal employment opportunities for qualified and competent youth. Such practices contradict the principles of performance/merit-based systems and lead to the hiring of low-quality government workers. KI-2 stated:

"Government is politicised; appointment in public jobs is on an ad-hoc basis".

KI-7 noted that:

"In the public sector, people are employed through bribes. People acquire jobs through reference plus bribes."

KI-10 noted that:

"Generally, people want to do government jobs. More than 10,000 (11,000) applicants apply for 60 jobs. In the past, the BPSC [Balochistan Public Service Commission] staff was engaged in corrupt practices and three staff members were penalised for malpractice."

Many students highlighted the lack of merit and equal employment opportunities, corruption, favouritism, and nepotism as common problems causing frustration among young people. STD-4, STD-6, STD-8, STD-9, STD-10, STD-12, STD-21, STD-22, STD-23, STD-26, STD-29, and STD-30 raised concerns about the prevalent corruption, lack of transparency and accountability, and bad governance in Balochistan.

"We are a bit pessimistic about job opportunities; you need a source [i.e., political reference/influence or other illicit means] to obtain a job, and, I think you, are well aware of job discrimination in Balochistan. Unfortunately, you need to bribe officials to secure employment. If you look at the current situation, incompetent people are holding important positions which is kind of causing dissatisfaction among youth about the credibility and fairness of the system" (STD-6).

"Well, corruption and bad governance are the main issues contributing to youth unemployment" (STD-22).

"If you are working in the government sector, you will help your family members to secure jobs. Political interference is also an issue as leading parties in the province manipulate the recruitment process and this raises questions about the fairness of the overall socio-political system in the province." (STD-29)

"Corruption must be controlled, and nepotism and favouritism issues must be addressed. Political leadership is the main culprit as they sell jobs to incompetent people or prefer to employ/support their family members to secure relevant jobs" (STD-30).

Dissatisfaction with the Provincial Leadership

The findings demonstrate that key informants were mostly dissatisfied with the political leadership regarding the delivery of sustainable outcomes for youth in the province. In most cases, key informants were critical of the will and competence of policymakers to effectively address problems faced by the youth in Balochistan. The participants raised concerns about policy development and ownership as well as poor policy implementation as inhibiting factors for youth unemployment. KI-1 stated:

"Political leadership is disappointing. For instance, the criteria for the Kamyab Jawan programme are made at the national level, while Balochistan is ignored and Balochistan's political leadership fails to raise its voice; such programs are not inclusive. We often lose based on the population criterion. [Further,] we lack both political will and competence in Balochistan; our leadership is not working on and talking about climate change and flood response at the national level. The Government of Balochistan has a gender equality and women empowerment policy but the government itself does not follow it. Girls and women are off the radar."

KI-6 remarked:

"Balochistan is marginalised in terms of professionals and the government is incompetent. Bureaucrats believe that they are masters of every field and, as a result, fail to deliver in any sector. Moreover, Balochistan never focused on [developing] the industrial base. Hub, which is the largest industrial area, is controlled by the businessmen of Karachi who prefer hiring professionals from Karachi. Balochistan youth cannot even compete with them. Likewise, fisheries and mining are also ignored in Balochistan. Balochistan could not capitalise due to limited resources. Fisheries, for example, these days is controlled by the Chinese and mining is controlled by Chileans and Chinese now."

KI-6 further argued that:

"Politicians say that they have limited funds, therefore, cannot make good policy programs. Parliamentarians have no idea about the policymaking and development agenda; they are only interested in getting jobs for the people from their constituencies."

KI-7 noted that:

"In recent years, no one is worried about the youth bulge, and we have failed to channel them and use their energy for the development of the province and economy."

KI-7 further argued that leadership crisis is the primary issue contributing to ineffective policymaking and resolving youth issues in the province:

"Artificial leadership is created by the state. Those leaders know that they are here for a limited time and, therefore, they engage in the plundering of resources."

KI-8 raised concerns regarding political leadership's attitude and the lack of seriousness about the issues faced by young people:

"Leadership is not interested and lacks seriousness."

Policy Failure, Policy-Implementation Gap, and Continuity of Policy

The findings indicate that a one-size-fits-all approach is used to address complex issues. The participants argued that ground realities such as contextual complexities, local norms, and regional differences are often disregarded by consultants, and key stakeholders including local communities, youth, and provincial experts are excluded from the policymaking process.

KI-2 commented on the lack of customised, Balochistan-specific policies:

"[We] do not tailor policies [and align them to ground realities]; we adopt one-size-fits-all sort of formulas in policymaking, which always fail. Hence, our policymakers lack the will and never analyse the cultural and social aspects of policy. And I believe that involvement of key stakeholders in policymaking including young people is imperative."

KI-3 suggested:

"We can generate enough jobs; however, the government never explored opportunities for innovation that could benefit the region."

STD-18 referred to the government's failure to promote new ways of doing business and technology adoption:

Nowadays, e-commerce is growing, and the world is moving towards digitalisation. While Punjab and Sindh are relatively better at embracing new ways of doing business and overall progressing well, our province has failed to adopt these new business trends. (STD-18)

KI-4 stated that the issues with policy development:

"We lack policy ownership. Furthermore, policies are made by consultants, and they make policies for Balochistan in Islamabad or foreign countries. These consultants hardly know Balochistan and, therefore, their policy buy-in is limited."

KI-4 pointed out that while public-private partnership (PPP) initiatives are central to creating opportunities for youth, the potential socioeconomic benefits have not been realised yet. KI-4 further argued that there is a scope for enhancing technical and vocational education and developing border markets with neighbouring countries; however, so far, these opportunities have not been exploited due to a lack of clear policy direction.

"To engage the private sector, the PPP Act has been passed but its implementation has failed. Unless you involve the private sector, you can't even think of resolving the unemployment issue. We need to strengthen technical and vocational education to address the unemployment issue in Balochistan. Furthermore, border markets need to be developed in the poorest districts of Balochistan. Iran has made border markets at three locations, but Pakistan has failed to establish its markets. We should have a clear policy for districts alongside the Afghan and Iran Border for border markets and cross-border trade".

Similarly, KI-5 referred to a wide range of issues including the importance of a systems thinking perspective, collaboration, financial decentralisation, youth skills enhancement programs, and an updated industrial policy to effectively address the chronic youth unemployment in Balochistan.

"We need to consider the systems' thinking perspective and cannot blame one institution or party for the youth unemployment issue. Financial decentralisation is imperative. Departments shall work collaboratively on youth-related policies. Universities must focus on employable skills for their graduates. Training programmes/on-the-job training/ internships need to be introduced and credits should be given to such programs so that the students take them seriously. Entrepreneurial skills are very important and must be given to students. Also, academia should not prepare students for government jobs; they should be given market-based skills."

KI-5 further argued that it is imperative to revisit Balochistan's industrial policy and support should be provided for boosting investment and industrial development.

"Industrial policy needs to be revisited. For instance, subsidies should be given to 700-800 industries based in Balochistan, which would not be very costly for the government. SEZ rules have been increased by the government

recently; such practices should be avoided. Rather, the government should deregulate the SEZs to promote private-sector engagement."

Likewise, KI-6 noted:

"Technocrats are not given space in policymaking. In modern times, sectors are interconnected, and government needs to develop policies keeping on board".

KI-7 showed discontent with the existing policies and the way policies are devised and enforced to address key issues. The interviewee argued in favour of decentralised policymaking and provincial autonomy:

"Industry is missing, and mega projects are kicked off, but they face difficulties and are unable to operate … policy in Pakistan is made around GT Road—the further you move from GT the footprint of national policy reduces. Therefore, far-flung areas of Pakistan could not progress".

KI-9 suggested that owing to the perception of Balochistan's current deprivation among local communities and persistent neglect by the national/federal government, certain forces are promoting their agenda against the state. The same issue was raised by several students during the interviews.

"Certain corners have also polluted the minds of the youth. It is inculcated in their minds that the federal government do not treat us fairly."

Additionally, KI-9 posited that policy continuity is a major challenge:

"Continuation of policies is a problem. Once leadership changes, policies are abandoned and efforts made in the past are wasted."

Mushroom Growth of Higher Education Institutes (HEIS) and Education Quality

Some interviewees suggested the rapid growth in the degree-awarding institutes in the province is counterproductive to imparting quality education. Some interviewees questioned the efficacy of mushroom growth of higher education providers and linked this with political planning. According to some interviewees, HEIs are delivering substandard education and training programmes, which, in turn, is contributing to producing low-quality graduates and skills-deficient manpower in Balochistan. For instance, KI-6 attributed youth unemployment to the mushroom growth of universities in the province and the lack of relevant educational programs offered by HEIs.

"Mushroom growth of universities has also failed the youth. Universities today are offering degree programmes in vast disciplines and graduates, therefore, are unable to find jobs."

KI-7 was critical of current programme offerings by HEIs in Balochistan. The interviewee argued that existing programmes offered by universities hold weak potential for youth to secure employment.

"Public money is spent on disciplines like international relations, political science, etc. The same money should be used in other technical disciplines that produce the most employable youth/labour".

In a similar vein, KI-9 argued:

"Educational institutions lack capacity; they are not performing to produce quality students that can compete at a global/international standard."

On the contrary, some participants supported the idea of establishing more HEIs and training centres in remote

areas of Balochistan.

KI-10 noted *"During [job] interviews, I have seen people from marginalised backgrounds in BPSC [Balochistan Public Service Commission]. Access to education was a problem, but now things are improving."*

KI-10 further argued that:

"Balochistan had 1 technical training centre. We need to expand the setup to all districts of Balochistan to enhance employment in Balochistan. Fifty years ago, all public schools had technical education, but over the years they were abandoned."

Education Provision to Youth

Education has a central role in improving youth's academic potential and skills development, which, in turn, fosters the likelihood of securing desired employment. However, many students suggested that illiteracy and lack of quality education are primary drivers of youth unemployment.

STD-5 argued that education is a critical issue, but Balochistan is a laggard in this regard, which leads to limited employment opportunities.

"Education has a key role in addressing youth unemployment issues. However, we have a very low literacy rate in Balochistan compared to other provinces."

Similarly, STD-8 argued that:

"We need a strong educational system. Education needs improvement not only at the university level but also school and college education need improvement."

STD-13 commented:

"Lack of quality education and poor education system are main issues. Even at the university level, students are expected to focus on memorisation of concepts rather than developing an in-depth understanding of the key concepts".

Career Counselling, Apprenticeship Opportunities, and Industry-Academia Linkages

The findings demonstrate that youth in Balochistan largely lack career counselling (e.g., open days at educational institutions, online resources concerning education, employment, entrepreneurship, and income) support. Additionally, apprenticeship opportunities are scarce as HEIs have failed to establish long-term industry-academia linkages. Accordingly, youth are facing challenges in securing employment due to the lack of practical experience and industrial exposure.

KI-8 suggested that:

"Counselling is limited; youth has no idea of how to choose a career path; they just end up earning degrees where they get admission. [At the same time], not much is work done at any level for the placement of girls. We can expand opportunities of online work for females, internships, and industry experience."

"There is a lack of entrepreneurial opportunities and [government] support is not available" (STD-1).

STD-11 referred to the lack of an enabling environment for industrial growth and new start-ups (STD-11).

"There is limited support available and very few opportunities for entrepreneurship. We need free tax areas, good infrastructure, and electricity. All these issues are important for boosting investment in the province. Once these issues are addressed, people will be able to find decent jobs in Balochistan" (STD-18).

"We don't have guidance available to us. Youth lack awareness" (STD-19).

"[There is] lack of counselling and guidance; we don't know the scope of the field; we are not introduced to various disciplines. Most students don't know which study programmes to choose and career paths to pursue" (STD-20).

"Unemployment is continually growing in Balochistan, which is having diverse negative impacts on our youth. Students often lack confidence; we don't get any counselling or support." (STD-25)

One of the students commented on the disconnect between HEIs and the business sector, as well as the lack of apprenticeship opportunities provided by HEIs:

"We have a weak educational system compared to other provinces, such as Panjab. While opportunities can be offered to our students, such as internship programmes and industry tours, these options are not provided to our students. That is why they lack the industrial experience and exposure that is necessary to secure relevant jobs. I believe that there should be a quota for Balochistan in other provinces, especially in public sector companies operating at the national level. I am against the quota system; however, if the child is handicapped or disabled, then the father might not drag him but rather help him when he wants to go somewhere. If there is deprivation and our province is deprived in certain ways, then the government needs to play its part to eliminate such frustration" (SD-7).

EMP-7 argued that:

"Youth often ask how would they be hired when they don't have practical experience. For that, it is important for academia and industry [the private sector] to collaborate" (EMP-7).

EMP-6 posited that industry-academia collaboration is imperative. However, a partnership-based approach is currently lacking in the province. The disconnect between what is taught at the university level and its application in the real-world context is one of the main issues. Accordingly, lack of practical experience and exposure among youth is making young people vulnerable to obtaining suitable employment.

"It is very important to understand the link between universities and the industrial sector. It is imperative to produce graduates that are required in the labour market and that can only be done once universities and the private sector work in collaboration. Unfortunately, we have a deficit here and the lack of collaboration is causing youth unemployment" (EMP-6).

Macroeconomic Instability and Political Crisis

The interviewees considered diverse economic and political issues as inhibiting factors for youth unemployment. STD-5 and STD-18 posited that political instability and security issues are related to the economic situation and the lack of opportunities.

"Our security situation is not good and our province has suffered a lot in recent years. The government is still struggling to maintain law and order in the province" (STD-18).

"Youth unemployment largely depends on government policies and the economic situation of the country. As I understand, the economic condition has a key role in youth employment. When the economic situation of the nation becomes stable, this would have a positive impact on improving the youth unemployment crisis in Balochistan" (EMP-3).

KI-9 remarked about poverty and resource inadequacy:

"The majority of the population is poor with limited exposure. During online classes during the COVID-19 pandemic, universities realised that even university faculty did not have any kind of computer operating system."

On the other hand, STD-5, STD-7, and STD-10 considered low literacy rates (STD-5), discrimination against the province (STD-7), and fake domicile issue (STD-10) as contributing factors to scarce employment opportunities.

Consequences of Youth Unemployment

The findings suggest varied individual and societal level impacts of unemployment in Balochistan. Youth continue to feel neglected, and unemployment has frustrated and disillusioned the youth, which has manifested itself in the form of violence and, in some cases, pushing the youth away from the mainstream economy and society; thus creating certain challenges for the state. At the same time, a trust deficit continues to increase between the unemployed youth and the state (federation). There is a perception among young people that the state has contributed little in terms of creating a flourishing environment where young people can find employment. Therefore, youth are engaging in counterproductive activities and are becoming disillusioned, engaging in violence and militancy and falling out of the mainstream. Additionally, the respondents referred to other impacts of youth unemployment such as brain drain, and a range of detrimental psychological and behavioural effects faced by unemployed youth.

Crime and Social Unrest

The findings indicate the relationship between youth unemployment and crime. The interviewees stated that a lack of tolerance in society, social unrest (i.e., law and order situation crisis), and high crime rates are linked to youth unemployment in the province. It can be argued that frustrated and disillusioned young people can easily be distracted from productive activities and engage in crime and other social ills.

KI-2 noted that:

"Youth unemployment creates a vacuum due to which youth can be very easily lured into extralegal activities. [As a result] political unrest will continue to exist, families will get more stressed, and since youth are suppressed, mental health issues [would continue to rise]."

KI-4 suggested that:

"Street crimes have increased. The strategic location of Balochistan is critical and the unemployed youth of Balochistan is exploited by different forces. Balochistan's vulnerability needs to be understood by the federal government as unemployed youth can be easily exploited. Trust deficit exists between Balochistan and the Federation."

KI-7 suggested:

"Crime rates have increased; mobile snatching has increased in major cities of Balochistan; youth is misdirected more than ever; frustration and anger have increased in society; drug use has increased. Natural calamities further exacerbate the situation."

Similar views were also expressed by students and employers. For instance, STD-2, STD-5, STD-18, STD-19, STD-21, STD-24, STD-26, STD-29, and STD-31, EMP-2, EMP-3, EMP-5, and EMP-6 considered unemployment as one of the primary drivers of higher crime rates, civil conflicts, and societal upheaval.

"Rising youth unemployment would cause more crime and social unrest. When young people are unable to find relevant jobs, then this has devastating [negative] impacts on society" (STD-5).

"Unemployed youth is not only a burden on the nation's economy and society but also the productivity of the country declines because of rising youth unemployment. Unemployed people are mostly unproductive and make a limited contribution to the economic well-being of the country. Such young people play a negative role in society as they can be easily exploited, especially in terms of being used in criminal activities" (STD-18).

"If one has to support their family's livelihood and when legitimate options are not available, then naturally people look for illegal means to earn money" (STD-21).

"As we speak, crime rates are high, illiteracy is common, and people have little tolerance" (STD-24).

"Poor and even the middle class are struggling for their basic survival. It is hard for them to fulfil their basic needs. This would create a law-and-order crisis and social unrest" (STD-29).

"[Unemployment] leads to an increase in the crime rate. One needs to earn a living and support family and if you don't have a job it would cause a livelihood crisis" (STD-31).

"Youth will be misguided, go astray, and lose focus. Issues such as robbery, stealing, and social unrest will be rampant. It is obvious that when people do not have reasonable financial means to earn a living, they will disturb others." (EMP-3)

"Injustice in society leads to a crime which, in turn, causes more disruption to the societal welfare" (EMP-6).

"High social expectations [i.e., young people are under pressure] is one of the factors which somehow pushes youth to go into the wrong hands" (EMP-6).

Adverse Psychological and Behavioural Implications

Some interviewees reported undesirable psychological and behavioural impacts of unemployment on youth's health and well-being. The findings show that some young people are facing emotional and psychological issues such as low morale, dissatisfaction, frustration, stress, and reduced self-confidence due to unemployment. STD-2, STD-3, STD-25, STD-27, and EMP-7 reported various issues.

"Well, the framework of society gets heavily disrupted – family life gets disturbed, and youth unemployment may cause behavioural issues, social ills, and difficulties" (STD-2).

"Naturally, youth will be disheartened and disappointed. That would cause frustration" (STD-22).

"There are diverse consequences – emotional implications, ongoing anxiety, as well as lots of pressure from society. As a result, some students even attempt suicide due to the ongoing social pressure" (STD-25).

"We have noticed that suicide rates are increasing; the youth get addicted to harmful substances, suffer from mental illness, etc. Due to limited opportunities, young graduates are pushed to engage in daily wage work. If we get opportunities, then this issue can be resolved as we have talented youth in Balochistan" (STD-27).

"It is obvious that when students invest 15 years of their time in education but are unable to find jobs, that eventually leads to frustration. Additionally, when they specialise in a particular field, they would like to pursue their career in that field, which is a big challenge. This situation creates a lot of negative impacts on youth" (EMP-7).

Brain Drain

Migration and brain drain are intertwined with youth unemployment. Young people continually look for higher salaries, improved standards of living, and quality of life. Nonetheless, if prospects for employment are lacking within countries, talented youth leave their countries in search of better opportunities abroad. According to the findings, owing to deprivation and lack of opportunities, some young people are increasingly migrating to other cities and nations to seek better job opportunities and quality of life.

KI-6, KI-8 and KI-10 stated that:

"Well, frustration in youth is increasing. Some youth in Balochistan have taken arms out of frustration. Brain drain is also rampant; the country is going in reverse" (KI-6).

"Unemployment is resulting in brain drain from Balochistan" (KI-8).

"Youth migrates to other cities and countries [due to the lack of employment opportunities]" (KI-10).

One of the students noted that youth compromise their passion and career aspirations due to a lack of opportunities and, naturally, search for options that could enable them to achieve their personal goals.

"Students must compromise on their passion due to a lack of opportunities and pursue jobs that are not aligned with their professional expertise" (STD-1).

6. DISCUSSION

Introduction

This section critically examines the findings on the nature, causes, and consequences of youth unemployment in Balochistan. Furthermore, this section integrates the empirical findings of this study with the literature on youth unemployment. The purpose is to develop in-depth insights into key aspects of the study, which, in turn, provides a strong basis for developing robust policy implications to address youth unemployment in Balochistan.

Nature of Youth Unemployment

This study presents a comprehensive analysis of youth unemployment in Balochistan, drawing on a mixed-methods approach using quantitative and qualitative strategies. According to the survey results, there is a significant level of youth unemployment in Balochistan, with a considerable number of respondents facing extended periods of joblessness even after a year of graduation. This aligns with the global concern highlighted in the literature, which emphasises the critical impact of youth unemployment on socioeconomic development (Görlich et al., 2013; Olubusoye et al., 2022; PwC, 2022).

The quantitative analysis further revealed that rural-urban migration is a prominent trend among the youth in Balochistan, as many individuals from rural areas seek better employment opportunities in towns and larger cities such as Quetta. However, they perceive the job market in Balochistan as limited, with insufficient decent jobs that match their qualifications. This resonates with the challenges faced by youth in developing economies, where limited social protection and inadequate labour market policies leave young individuals with minimal formal institutional or government support beyond their immediate networks (Mitra & Verick, 2013). Table 2 provides a summary of quantitative findings of demand and supply.

Table 2: A Summary of Quantitative Findings (Demand-Supply Analysis)

Demand Side	Supply Side
Preference for Local Employees: 66% of employers in Balochistan prefer to hire youth from the province, indicating a strong inclination towards local talent.	**Migration and Mobility:** A significant number of respondents from rural areas and small towns migrated to larger cities in search of livelihood and better job opportunities. Specifically, 71% of respondents reported living outside Quetta, with 39% of females and 32% of males migrating to other cities for work.
Minimal Gender Preference: 76% of employers reported having no gender preference during the hiring process, indicating a relatively equitable approach to gender representation in the workforce.	**Engagement and Marriage:** Unemployment among youth, especially males, often leads to engagement or marriage, as it is culturally believed to improve their luck and chances of finding a livelihood. Notably, 75% of male respondents were engaged or married.
Reasons for Hiring Local Applicants: Employers cited various reasons for preferring applicants from Balochistan, including limited opportunities for them (96%), a better understanding of local society and culture (96%), and the need to provide opportunities to youth in the region (80%).	**Family Structure:** Most respondents resided in joint families, with 25% reporting living in extended families with 10–45 family members. The average family size reduced to 6.38 when respondents living in extended families were excluded, with an average of 1.73 earners per family.
Applicant Skill Rejections: Employers highlighted key reasons for job rejections, including poor writing skills (64%), inadequate technical skills (67%), and insufficient oral communication abilities (64%).	**Educational Choices:** The decision-making process regarding the field of education is influenced by individuals, their parents, and family members. Additionally, academic institutions were found to provide minimal career counselling to students.
Educational Institutions and Employment: When asked about the quality of education and training provided by universities and colleges in Balochistan, 44% of employers disagreed or strongly disagreed, while only 30% agreed or strongly agreed, indicating concern over the employability of graduates.	**Employability Skills:** The most important employability skills as rated by the youth were IT skills and communication skills, while good general education and apprenticeships were perceived as the least important skills.
Preference for Technical Education: 51% of employers agreed that youth with technical education perform better in the job market compared to university graduates, suggesting a demand for skill-specific qualifications.	**Career Aspirations:** Contrary to popular belief, around 50% of the youth expressed a desire to start their own business, whereas only 27% aimed for government jobs. However, academia and policymakers still believe that the majority of youth prefer government jobs.
Labour Market Skill Gap: 66% of enterprises reported facing challenges in finding the right labour force, reflecting a skill gap in the available talent pool.	**Job Search Patterns:** Approximately 57% of fresh university graduates began their job search during their final semester, while 43% were yet to start. Educational institutions and job fairs were the primary sources for job searching.
Low Employee Productivity: Employers identified poor employee productivity as a major issue, impacting overall organisational performance and efficiency.	**Preference for Local Jobs:** Most students from Balochistan preferred to look for job opportunities within the province (96%), with females being more inclined to seek job opportunities outside Balochistan for improved quality of life and independence.

Limited Capacity Building Opportunities: According to 56% of employers, organisations in Balochistan did not offer adequate capacity building or human resource development opportunities for their employees.	**Importance of Studying Outside Balochistan:** Out of the respondents who studied outside Balochistan, 70% believed it had a positive impact on their job prospects. In contrast, those who never studied outside felt their job prospects would have been better if they had (100%).
Workplace Environment Concerns: Employers reported compromised workplace environments, possibly indicating issues with workplace culture and management.	**Obstacles to Finding Jobs:** The main obstacles identified by youth in finding good jobs were a mismatch between education requirements and acquired skills (70%), lack of work experience (53%), and limited job availability (80%).
Job Timings and Labour Motivation: Employers expressed concerns over job timings not being preferable and a lack of motivation among the labour force, suggesting potential challenges in retaining skilled employees.	**Expectations from Employers:** Youth expected jobs that utilise their skills (100%), offer good career paths (98%), are well-paid (92%), and interesting (89%). Job security and independence were also important considerations.

Source: Authors' compilations.

Table 3 gives a summary of quantitative findings on the nature of unemployment.

Table 3: A Summary of Quantitative Findings on the Nature of Unemployment

Type of Unemployment	Findings
Frictional	Frictional unemployment is evident from the survey results, as 20% of the respondents reported engaging in voluntary work, indicating that some individuals were temporarily unemployed while actively searching for paid employment. 15% of the respondents said they still had to start their job search, suggesting that they were currently experiencing frictional unemployment as they sought new job opportunities.
Structural	Structural unemployment is highlighted by the fact that 67% of job applicants were denied positions due to very poor to poor technical skills. This reveals a mismatch between the skills possessed by job seekers and the requirements of available jobs
Cyclical	The perception of 80% of youth was that the Balochistan job market was limited and did not offer good jobs for university graduates, which might be indicative of cyclical unemployment during economic slowdowns.
Seasonal	Seasonal unemployment may be occurring, as reflected by youth engaged in entrepreneurial activities seeking financial assistance, which could indicate certain businesses' seasonal nature and the need for support during specific periods.
Technological	Technological unemployment's impact is evident in employers' concern over low-level skills or lack of technical skills among the labour force. Advances in technology might be reducing the demand for certain types of labour.
Voluntary	The survey revealed voluntary unemployment, with 20% of respondents engaged in voluntary work, suggesting they chose not to participate in paid employment for various reasons.

Underemployment	Underemployment is a concern as 72% of respondents planned to start a job or their own business after graduation, while 28% planned to further their education or had other plans. This suggests a lack of suitable full-time employment opportunities for some graduates.

Source: Authors' compilations.

The qualitative analysis demonstrates the presence of a skills deficit among Balochistan's youth, with graduates lacking relevant and marketable skills required by employers (KI-1, KI-4, KI-5, STD-3, STD-26, STD-27). This finding aligns with the literature, which emphasises the importance of addressing the skills mismatch to improve youth employability (Görlich et al., 2013; Mehmood et al., 2021; Mitra & Verick, 2013). Improving vocational training and aligning educational curricula with industry demands are the recommended strategies to bridge this gap.

Similarly, the lack of a robust industrial sector and limited job opportunities in Balochistan contribute to youth unemployment (KI-2, KI-5, EMP-1, EMP-4). This finding is consistent with the literature, which highlights the importance of promoting private sector growth and investment in the traditional sector to create more job opportunities (Mitra & Verick, 2013; Almula-Dhanoon, 2021). Additionally, the impact of the China-Pakistan Economic Corridor (CPEC) on generating employment needs further examination (KI-9).

Likewise, the underemployment is prevalent among Balochistan's youth (KI-2, KI-3, KI-6, KI-9). This finding concurs with the literature, which emphasises the issue of underutilisation of human resources and the need for productive employment for young people (Bell & Blanchflower, 2010; O'Higgins, 2001). Addressing this aspect is essential for maximising youth potential and productivity.

Additionally, migration for employment due to limited job opportunities in Balochistan is common and drives many young people to migrate in search of employment (EMP-4, EMP-6). This finding is consistent with the literature on the "brain drain" phenomenon wherein skilled youth leave their home regions for better opportunities elsewhere (Shakeel et al., 2019). Addressing youth unemployment should consider retaining local talent through improved job prospects.

Furthermore, qualitative analysis highlights the importance of developing a vibrant industrial infrastructure in Balochistan (KI-1, KI-4). This finding resonates with the literature, which emphasises the role of industrial development in creating employment opportunities for the youth (Chaudhary & Hamid 1997; Kamga et al., 2022). Government initiatives should focus on promoting industries to stimulate job creation.

Moreover, the dominance of the public sector in Balochistan contributes to the high demand for government jobs (KI-2, KI-3). This finding aligns with the literature, which underscores the need for a balanced economy with opportunities in both public and private sectors to absorb the youth labour force (Mitra & Verick, 2013; O'Higgins, 2001).

Finally, the lack of focus on emerging technologies results in not equipping youth with skills in emerging technologies (EMP-8). This finding corresponds with the literature, which emphasises the significance of digital skills and technical expertise in the modern job market (ILO, 2022; Görlich et al., 2013). Introducing courses in emerging technologies can enhance youth employability.

Building on the above discussion, Table 4 gives a comparison of quantitative and qualitative findings on the nature of unemployment in Balochistan.

Table 4: Comparison of Quantitative and Qualitative Findings on the Nature of Unemployment

Quantitative	Qualitative
Nature of Youth Unemployment	
The quantitative data confirms that youth unemployment in Balochistan is a significant issue, with 80% of respondents reporting engagement in paid work and 20% being involved in voluntary work. Most respondents believed that a university degree was required to secure a decent job, and around 40% of unemployed graduates felt the need to earn a higher degree to improve their job prospects.	The qualitative interviews reinforce the complex and multidimensional nature of youth unemployment in Balochistan. The interviews highlighted structural unemployment, underemployment, and seasonal unemployment as prevailing challenges. Lack of productive resources, inefficient utilisation of economic resources, and the absence of a robust industrial infrastructure exacerbate the situation. The dysfunctional education system and inadequate industrial sector are identified as contributing factors to long-term unemployment among youth.
Skills Deficit and Labour Market Capacity	
The quantitative data reveal that 64% of applicants denied jobs had poor writing skills, and 67% had poor technical skills. Moreover, 58% of denied applicants had poor oral communication skills and 58% had inadequate breadth of educational training.	The qualitative interviews also highlight the skills deficit among youth, with participants emphasising the mismatch between demand for and supply of job-related skills. Employers expressed concerns about the quality of graduates and their lack of practical, industry-relevant skills. The interviews pointed to a need for improved technical and soft skills training to enhance youth employability.
Youth Aspirations and Job Preferences	
The quantitative data indicates that 50% of graduates wished to start their business in an ideal situation, while 18% planned to become entrepreneurs. Around 72% of respondents planned to start a job or their own business after graduation, and 28% planned to pursue further education.	The qualitative interviews reveal that many youths aspired to be professionally successful and wished to start their businesses. However, the inclination towards government jobs cannot be denied, with 27% of youth expressing a desire to work in the public sector. The interviews highlighted the importance of improving job opportunities and industry connections to align with youth aspirations.
Balochistan Job Market and Migration	
The quantitative data indicates that 80% of youth believed the Balochistan job market was limited and did not offer good jobs that matched their qualifications. Most students from Balochistan did not seek job opportunities outside the province, but the majority of those who did were female.	The qualitative interviews reinforce the perception of a limited job market in Balochistan, leading many youths to migrate to other cities or countries in search of better job opportunities. The reasons for migration varied between males and females, with males citing family obligations, while females wanted improved quality of life and greater independence.
Employer Perspectives	
The quantitative data reveals that employers faced challenges in finding the right labour force, with 66% reporting problems in this area. Most	The qualitative interviews shed light on employer perspectives, highlighting the lack of motivation and quality of the labour force as key issues. Employers

employers preferred to hire youth, and 76% of them did not have a gender preference when hiring.	stressed the importance of relevant skills and technical education for employability, and some expressed concern about the limited options for job switching in Balochistan.
Education and Youth Employment Prospects	
The quantitative data indicates that 44% of employers disagreed with the notion that universities and colleges in Balochistan were delivering quality education and training.	The qualitative interviews echo concerns about the quality of education in Balochistan. Employers emphasised the need for universities to focus on improving the quality of education and providing more internship opportunities. They also suggested that universities should pay attention to students' soft skills and enhancement of technical skills to enhance youth employability.

Source: Authors' compilations.

Causes of Youth Unemployment

The quantitative analysis suggests diverse factors contributing to youth unemployment. The limited job market in the region presents a significant challenge for graduates seeking employment opportunities. Additionally, rural-urban migration, driven by aspirations for better livelihoods, intensifies competition for limited jobs as young individuals move to urban areas. The mismatch between education choices and job market requirements leads to underutilisation of skills among educated youth, resulting in higher unemployment rates. Furthermore, inadequate financial opportunities hinder the entrepreneurial ambitions of young individuals.

These quantitative factors coincide with prior research on youth unemployment (e.g., Baah-Boateng, 2016; Görlich et al., 2013). Studies have emphasised the impact of macroeconomic factors, such as GDP growth rate and fiscal tightening, on youth unemployment rates (Baah-Boateng, 2016). Moreover, research has explored how structural factors, like public expenditure on employment services and labour laws, play a crucial role in shaping youth unemployment trends (Görlich et al., 2013). These findings are consistent with the impact of limited job market opportunities and rural-urban migration on youth unemployment identified in the analysis.

Conversely, the qualitative analysis sheds light on critical factors contributing to youth unemployment in Balochistan beyond the quantitative scope. The lack of industrial development and a weak private sector create a dearth of employment opportunities, leading youth to seek government jobs. Additionally, inadequate support for females in employment, influenced by cultural norms and conservative beliefs, restricts their participation in the formal economy, further exacerbating youth unemployment. The perception of corruption and unequal employment opportunities also fosters distrust in the recruitment process among qualified youth.

These qualitative factors align with prior literature on youth unemployment. Studies have explored how cultural beliefs and societal norms can hinder employment opportunities for females, impacting their participation in formal economic activities (O'Higgins, 2001). This finding resonates with the qualitative analysis, which identifies inadequate support for females in employment as a contributing factor to youth unemployment in Balochistan. Furthermore, the literature has emphasised the role of corruption and nepotism in the recruitment process, leading to unequal employment opportunities (O'Higgins, 2001), consistent with the analysis's findings on the perception of corruption and its impact on youth unemployment.

The causes of youth unemployment in Balochistan are multifaceted, involving both quantitative and qualitative factors. Addressing this issue requires a holistic approach that considers the interactions between these factors.

Policymakers and stakeholders must implement evidence-based policies that encompass both the challenges identified through quantitative analysis, such as the limited job market and education mismatches and the issues that emerge as a result of qualitative analysis including inadequate support for females and corruption perceptions. By adopting a holistic strategy, Balochistan can foster economic prosperity and provide better prospects for its youth in the job market. Further research in this area can provide valuable insights to develop targeted interventions to effectively tackle youth unemployment in the region.

Table 5 assimilates and compares the key aspects of quantitative and qualitative issues discussed regarding the causes of unemployment in Balochistan.

Table 5: Comparison of Quantitative and Qualitative Findings on Causes of Unemployment

Quantitative	**Qualitative**
Migration for Livelihood	
The quantitative findings confirmed that 53 respondents reported working in a different city from where they grew up, with migration being higher among females (39%) compared to males (32%).	The qualitative findings mentioned that migration to Quetta for better job opportunities is common among youth from rural areas and small towns.
Employment and Aspirations	
The quantitative findings showed that 81% of respondents believed that a university degree was required to engage in a decent job, and 50% of graduates wished to start their business. Additionally, 27% of youth wished to work in the public sector.	The qualitative findings indicated that youth aspired to professional success, starting their businesses, and getting government jobs.
Job Market Perception	
The quantitative findings supported this perception, with 80% of youth believing that the Balochistan job market was limited and not offering good jobs that matched their qualifications.	The qualitative findings highlighted that the Balochistan job market was perceived to be limited and did not offer suitable jobs for university graduates.
Employability Skills	
The quantitative findings reinforced this, as 60% of respondents believed that computer and IT skills were important for securing a good job.	The qualitative findings mentioned that youth rate IT skills and communication skills as the most important employability skills.
Challenges in Finding Jobs	
The quantitative findings supported this, as employers mentioned that 67% of applicants denied a job had very poor or poor technical skills, indicating a lack of relevant skills in the labour force.	The qualitative findings identified that graduates faced obstacles in finding jobs, including a mismatch between education requirements, and acquired skills.
Quality of Education	
The quantitative findings aligned with this concern, as 44% of employers disagreed or strongly disagreed with the statement that universities and colleges in Balochistan were delivering quality education and training.	The qualitative findings indicated concerns about the quality of education in Balochistan's universities and colleges.

Preference for Local Talent	
The quantitative findings confirmed this preference, as 96% of employers said they preferred to hire applicants from Balochistan, and 81% preferred youth from Balochistan who had studied outside the region.	The qualitative findings mentioned that employers preferred to hire youth from Balochistan and those who had studied outside the region.
Reasons for Job Rejection	
The quantitative findings support this, as employers reflected that 64% of applicants denied a job had very poor or poor writing skills, and 67% had very poor or poor technical skills.	The qualitative findings highlighted that job applicants were often rejected due to poor writing, technical, and communication skills.

Source: Authors' compilations.

Consequences of Youth Unemployment

The consequences of youth unemployment in Balochistan, as revealed by both quantitative and qualitative analyses, align with existing literature on the subject. The quantitative analysis highlights a higher not in employment, education, or training (NEET) rate in Balochistan compared to the national average, indicating a lack of access to education and employment opportunities for a substantial portion of the youth (GOP, 2021). This finding is consistent with previous research that emphasises the impact of youth unemployment on educational and labour market outcomes (Iduseri et al., 2022; ILO, 2022).

Moreover, the study's identification of gender disparities in employment opportunities is also in line with prior research (Hou, 2010; Bashir et al., 2013). The employment-to-population ratio in Balochistan stands at 38.6, with an even lower ratio of 11.3 for females, highlighting the challenges female youth face in accessing employment (GOP, 2021).

The qualitative analysis provides valuable insights into the psychological and behavioural consequences of unemployment on youth in Balochistan. The study reveals that unemployment leads to negative impacts, such as low morale, dissatisfaction, stress, and reduced self-confidence (STD-2, STD-3, STD-25, STD-27, EMP-7). These findings correspond with prior research that associates youth unemployment with adverse mental health outcomes and reduced well-being (Bell & Blanchflower, 2010; O'Higgins, 2001).

Additionally, the qualitative analysis highlights the role of youth unemployment in contributing to rising crime rates and social unrest in Balochistan. Frustrated and disillusioned youth may resort to criminal activities, leading to law-and-order crises in the province (STD-2, STD-3, STD-25, STD-27, EMP-7). This observation corresponds with existing literature that links youth unemployment to increased crime rates and social instability (Bell & Blanchflower, 2010; O'Higgins, 2001).

Another significant consequence identified in the study is brain drain, i.e., talented youth from Balochistan migrate to other cities and countries in search of better job opportunities and living standards (STD-2, STD-3, STD-25, STD-27, EMP-7). This phenomenon aligns with previous research that highlights brain drain because of limited local employment opportunities and prospects (Iduseri et al., 2022; Bell & Blanchflower, 2010).

The trust deficit between unemployed youth and the government, as highlighted in the qualitative analysis, is a crucial observation that resonates with existing literature (STD-2, STD-3, STD-25, STD-27, EMP-7). Prior research emphasises the importance of effective policy measures and government initiatives in addressing youth unemployment and restoring trust in the system (Hou, 2010; ILO, 2022).

In conclusion, the findings of the study on the consequences of youth unemployment in Balochistan are consistent with existing literature on the subject. The quantitative analysis provides statistical evidence of the challenges faced by youth in accessing education and employment opportunities, while the qualitative insights offer a deeper understanding of the psychological, behavioural, and societal impacts of unemployment on youth. By aligning its efforts with existing literature and recommendations, Balochistan can work towards implementing targeted policy interventions to mitigate the consequences of youth unemployment and foster economic growth and social stability in the province.

Table 6 provides a comparison of quantitative and qualitative findings on the consequences of unemployment in Balochistan.

Table 6: Comparisons between Quantitative and Qualitative Findings on the Consequences of Unemployment

Quantitative	**Qualitative**
Crime and Social Unrest	
The quantitative data shows that 80% of employers believed that youth unemployment in Balochistan contributed to social unrest, and 66% of them reported facing challenges in finding the right labour force. This aligns with the qualitative findings of crime and social unrest being associated with youth unemployment.	The qualitative findings suggest that youth unemployment was linked to an increase in crime rates, social unrest, and law and order issues in Balochistan. There is a perception that frustrated and disillusioned youth may engage in miscreant activities due to the lack of productive opportunities.
Trust Deficit	
The quantitative data does not directly capture the trust deficit perception. However, the finding that 80% of youth believed that the job market in Balochistan was limited and did not offer good jobs aligns with the sentiment of feeling neglected and the state's insufficient efforts in job creation.	The qualitative findings indicate a growing trust deficit between unemployed youth and the state (federation). Young people felt neglected and there was a perception that the state had not done enough to create an enabling environment for employment.
Adverse Psychological and Behavioural Implications	
The quantitative data did not directly measure the psychological impacts, but it does show that 26% of graduates were unemployed even after a year of their graduation. This suggests a prolonged job search period, which could contribute to the reported adverse psychological effects.	The qualitative findings highlight the adverse psychological impacts of unemployment on youth, including low morale, dissatisfaction, frustration, stress, and reduced self-confidence. There are also reports of suicide attempts and mental health issues among young graduates due to limited opportunities.
Brain Drain	
The quantitative data shows that 53% of graduates wished to start a business, and only 18% wanted to be entrepreneurs. Additionally, 29% of respondents were unwilling to migrate for work, while 31% were willing to move to the capital city, and only 8% were willing to move to rural areas. This suggests that many graduates are seeking better opportunities outside Balochistan, which aligns with the qualitative findings on brain drain.	The qualitative findings indicate that talented youth are increasingly migrating to other cities and countries in search of better job prospects and quality of life, contributing to brain drain from Balochistan.

Source: Authors' compilations.

7. CONCLUSION AND RECOMMENDATIONS

Introduction

The present study on youth unemployment in Balochistan has explicated the underlying challenges faced by young people in obtaining decent jobs in the labour market. This research offers workable and appropriate policy recommendations to the government, policymakers, and stakeholders, focusing on three perspectives, namely youth, employers, and public policy. By identifying the factors contributing to youth unemployment and highlighting the significance of skills development, job creation, and gender inclusivity, this study contributes to enhancing the role of youth employment in the sustainable development of the province.

The nature of youth unemployment in Balochistan is complex, as indicated by an in-depth analysis of both quantitative and qualitative data. The study confirms a significant level of youth unemployment in the region, aligning with global concerns about its impact on socio-economic development. The migration of youth from rural to urban areas seeking better opportunities, the skills deficit among graduates, the limited industrial infrastructure, and the dominance of the public sector are identified as key factors contributing to the problem. The analysis further underscores the importance of digital skills and emerging technologies in enhancing youth employability.

The causes of unemployment in Balochistan encompass diverse factors. From the perspective of quantitative analysis, the limited job market poses a significant challenge for graduates seeking employment, while rural-urban migration intensifies competition for scarce jobs as young individuals move to urban areas in pursuit of better livelihoods. The mismatch between education choices and job market requirements results in the underutilisation of educated youth's skills, leading to higher unemployment rates. Moreover, inadequate financial opportunities curtail the entrepreneurial aspirations of the young population. Conversely, qualitative analysis reveals that the lack of industrial development and a weak private sector creates a scarcity of employment opportunities, prompting youth to turn towards government jobs. Additionally, cultural norms and conservative beliefs hinder females' support in employment, exacerbating youth unemployment and the perceived corruption in recruitment processes fosters distrust among qualified youth. Addressing this issue necessitates a comprehensive approach that tackles both quantitative challenges, such as the limited job market and education-employment mismatch, and qualitative issues like inadequate support for females and corruption perceptions. By implementing evidence-based policies and adopting a holistic strategy, Balochistan can effectively combat youth unemployment, fostering economic prosperity and better prospects for its young workforce in the job market.

The consequences of youth unemployment in Balochistan, as revealed by both quantitative and qualitative analyses, align with existing literature. The study highlights the adverse effects on education and mental health, the exacerbation of social issues, and brain drain as young talent seeks opportunities elsewhere. Additionally, the trust deficit between unemployed youth and the government is recognised as a crucial factor that needs to be addressed through effective policy measures.

By understanding the nature and addressing the multifaceted causes and consequences of youth unemployment in Balochistan, the government and stakeholders can adopt a comprehensive approach to tackle the issue. The implementation of evidence-based policies, fostering industrial development, promoting private sector growth, and enhancing skills development are crucial steps in improving youth employability and overall well-being. Through such concerted efforts, Balochistan can harness the potential of its youth and contribute to the sustainable development of the province.

Concluding Remarks and Analysis Recap

This section integrates and summarises the key takeaways of the study and explicates how the research objectives and research questions are addressed in the report. In essence, a summary of important findings on youth unemployment in Balochistan is imperative for readers to understand the key issues presented and analysed in the report and focus on important aspects of the topic. In this regard, objectives and questions are listed in italics and a concise summary of salient findings concerning each research objective or question is presented.

RO-1. *Identify the fundamental challenges that young people in the Balochistan province encounter while seeking decent employment opportunities in the labour market.*

Young people in the Balochistan province confront a multitude of formidable challenges as they strive to secure meaningful employment opportunities in the labour market. These challenges, as revealed through both quantitative and qualitative findings, paint a complex picture of the barriers faced by youth in their pursuit of decent jobs.

One of the overarching challenges is the limited availability of job options. The province's relatively small economy struggles to accommodate the influx of graduates, resulting in a scarcity of opportunities. This situation is exacerbated by a mismatch between the education provided and the actual demands of the job market. The education system has been criticised for producing graduates who lack the essential skills and competencies sought by employers. The prevailing focus on theoretical knowledge without practical application leaves graduates ill-equipped for the workforce.

Furthermore, the Public Sector Development Programme (PSDP) allocates a significant portion of resources to infrastructure construction, neglecting the critical need for skill enhancement and training. This exacerbates the gap between education and employment and contributes to the unavailability of skilled workers. The absence of a robust industrial base and the limited presence of a diverse private sector also contribute to the dearth of suitable job opportunities.

Gender disparities play a significant role in compounding the challenges faced by youth. Women encounter societal norms, biases, and inadequate facilities that impede their access to employment. The preference for government jobs, despite their scarcity, further strains the situation. Political interference, corruption, and favouritism in the recruitment process undermine the merit-based hiring system, eroding trust in the fairness of job allocation.

Lack of career counselling and guidance perpetuates uninformed career choices, while deficiencies in soft skills lead to job rejections. Brain drain remains a concern as talented individuals seek better prospects beyond the province's borders. Despite these obstacles, aspirations for entrepreneurship persist, hindered by limited resources, mentorship, and an enabling environment.

In the digital age, poor digital infrastructure in rural areas limits job choices and opportunities for remote work. Negative perceptions about the job market and job dissatisfaction contribute to an overall sense of frustration and disillusionment among young job seekers. There is also a noted lack of urgency in job search efforts after graduation, which further contributes to the unemployment challenge.

RO-2. *Enhance the understanding of the specific skills, knowledge, and competencies that youth, especially fresh graduates, require to actively participate and make meaningful contributions in their potential roles.*

Certainly, the combined findings from both quantitative and qualitative research shed light on the specific skills, knowledge, and competencies that are crucial for young individuals, especially recent graduates, to actively

engage and make meaningful contributions in their potential roles. This comprehensive understanding encompasses a diverse spectrum of attributes that extend beyond traditional academic qualifications.

Technical skills emerge as a foundational requirement, tailored to the distinct fields graduates venture into. These skills empower them to apply specialised knowledge effectively, whether it involves programming languages, data analysis tools, or industry-specific applications. Problem-solving abilities and fostering critical thinking and logical reasoning are highlighted as vital to navigating complex scenarios and devising practical solutions.

The importance of communication skills, both written and oral, cannot be understated. Graduates need to convey their ideas persuasively, collaborate seamlessly within teams, and engage stakeholders convincingly. Equally significant are soft skills, encompassing adaptability, teamwork, time management, and conflict resolution. These competencies facilitate effective navigation of diverse work environments, adeptly managing pressure, and harmonious collaboration.

In the digital era, digital literacy stands as an indispensable attribute. Proficiency in digital tools, software, and platforms for communication and project management is paramount. Analytical and research skills are underscored for their role in gathering and interpreting information, enabling evidence-based decision-making and innovative problem-solving.

An entrepreneurial mindset surfaces as a valuable trait, fostering creativity, innovation, and proactive identification of growth avenues. Networking skills assume importance in cultivating professional relationships, offering mentorship, guidance, and potential career advancements.

Ethical and professional conduct are deemed essential, emphasising integrity and professionalism in all interactions. Leadership skills, even in entry-level roles, are seen as advantageous, enabling graduates to initiate, motivate, and exhibit leadership qualities.

Cultural competency gains prominence in our globalised world, stressing the significance of intercultural sensitivity and effective communication across diverse perspectives. Continual learning is positioned as a cornerstone, showcasing the commitment to ongoing development, industry trends, and the acquisition of new skills.

Foundational industry knowledge is pivotal, allowing graduates to comprehend sector-specific dynamics swiftly and contribute effectively. Finally, the ability to create and deliver engaging presentations is recognised as a vital tool for effective communication of ideas and project outcomes.

RO-3. *Highlight the significant role of government and public institutions in developing a comprehensive and integrated framework that fosters youth employment and well-being. Additionally, the study emphasises their overall contribution to the sustainable development of the province.*

The study highlights the crucial role of government and public institutions in developing a comprehensive and integrated framework to foster youth employment and enhance their overall well-being in the context of Balochistan. This role is pivotal for driving sustainable development within the province. Both the quantitative and qualitative findings collectively emphasise the diverse contributions that these entities make in this endeavour.

First and foremost, government and public institutions play a central role in establishing a conducive environment for youth employment and welfare through the formulation of forward-looking policies. By identifying sectors with high potential for job creation, facilitating private sector engagement, and implementing targeted programs, these entities lay a robust foundation for sustainable and inclusive growth.

Moreover, these institutions are instrumental in bridging the gap between education and employability. Through collaboration with educational institutions and industries, they facilitate skill development that equips fresh graduates with practical skills, enhancing their employability and expanding their career prospects.

The establishment of vocational training centres under government purview further bolsters this effort, providing specialised skills that align with industry demands. This empowers young individuals not only with job-specific proficiencies but also nurtures their entrepreneurial aspirations.

The study underscores the role of government-backed initiatives in promoting entrepreneurship, fostering an ecosystem that encourages youth-led startups. By providing training, financial support, mentorship, and regulatory guidance, public institutions create a foundation for innovation and self-sufficiency.

Furthermore, government institutions serve as intermediaries between employers and young job seekers, simplifying the transition from academia to professional employment through dedicated placement centres.

Collaborating with industries, these entities facilitate internship and apprenticeship programmes, providing invaluable experiential learning opportunities that prepare youth for the complexities of the workforce.

Through strategic policy interventions, government and public institutions incentivise private sector participation in youth employment initiatives, acting as catalysts for job market growth.

Of paramount importance is the commitment of these institutions to promoting gender equality, enabling female youth to participate actively in the workforce by curbing discrimination, ensuring safety, and offering family-centric benefits.

Investments in critical infrastructure, data-driven decision-making, enforcement of decent work practices, and the establishment of social safety nets collectively contribute to a comprehensive framework that not only supports youth employment but also elevates their overall well-being.

In conclusion, the study underscores the instrumental role of government and public institutions in crafting an inclusive ecosystem that nurtures youth employment and enhances their quality of life. Through visionary policies, collaborative skill development, entrepreneurship promotion, industry engagement, and a steadfast commitment to equality and well-being, these institutions underpin the sustainable development narrative of Balochistan. This multifaceted approach ensures a prosperous and equitable future for the province's young population and the broader community.

The key takeaways from the study regarding the research questions are as follows:

RQ-1. *What are the root causes of youth unemployment in Balochistan?*

The root causes of youth unemployment in Balochistan are multifaceted and deeply intertwined, as revealed by both quantitative and qualitative findings. These causes encompass a range of socioeconomic, educational, and structural factors that collectively contribute to the prevalent issue.

One significant contributing factor identified in the quantitative findings is rural-urban migration. The pursuit of better opportunities prompts rural residents to move to larger cities like Quetta, leading to urban unemployment and income disparities. This is exacerbated by the prevalence of joint and extended family structures that can strain available resources and limit income-sharing.

A key factor driving youth towards unemployment is the limited job prospects within the region. The quantitative findings emphasise the attractiveness of secure government jobs, which are often preferred due to their stability. This preference for the public sector is linked to the scarcity of opportunities in other sectors, further

contributing to unemployment.

The quality of education emerges as a critical determinant in both quantitative and qualitative findings. Graduates frequently lack the practical skills demanded by the job market, highlighting a gap between theoretical knowledge and its practical application. The disconnect between education and industry requirements renders graduates ill-equipped for available positions.

The allocation of resources, as illuminated by the quantitative findings, plays a role in exacerbating unemployment. The emphasis on construction in the PSDP neglects skill enhancement and training initiatives. This misallocation perpetuates the dearth of qualified individuals for various industries.

The province's small economy faces challenges in absorbing its growing youth population, resulting in an excess of graduates without sufficient employment opportunities. The private sector, primarily consisting of small-scale industries, cannot generate the requisite number of jobs. This structural limitation further contributes to the unemployment problem.

The absence of emphasis on soft skills and demand-driven education also compounds the issue. The qualitative findings highlight the importance of well-rounded skills such as communication, adaptability, and teamwork, which are often overlooked in formal education systems.

Gender disparities and the security situation are additional barriers identified in both sets of findings. Cultural norms and biases limit opportunities for female youth, exacerbating the unemployment gender gap. The security situation also plays a role in hindering economic growth and discouraging investments, further constraining job opportunities.

Corruption, political interference, and favouritism in government appointments undermine fair employment opportunities and contribute to a sense of injustice among the youth. This sentiment erodes trust in the system and exacerbates unemployment challenges.

The absence of an enabling environment for industrial growth, entrepreneurship, and innovation also features prominently in the findings. Limited access to resources, lack of mentorship, and regulatory hurdles deter aspiring entrepreneurs from creating their opportunities.

The qualitative findings additionally underscore the mismatch between educational institutions and the industrial sector. The lack of collaboration between academia and the private sector leads to a shortage of graduates with skills aligned with industry demands.

Balochistan's marginalised status and lack of policy ownership exacerbate youth unemployment, hindering the implementation of effective solutions.

***RQ-2**. How is the phenomenon of youth unemployment conceptualised and framed in the context of Balochistan?*

The conceptualisation and framing of youth unemployment in the context of Balochistan reflect a multifaceted understanding influenced by migration trends, family dynamics, and educational decisions. Quantitative findings highlight that urbanisation, particularly in cities like Quetta, is driven by a significant migration of rural youth seeking employment prospects. Marital choices often intertwine with livelihood considerations, while educational pathways are shaped by personal preferences and family decisions. However, educational institutions offer limited career guidance, leading to mismatches between aspirations and available opportunities. Entrepreneurship is a prominent aspiration among the youth, although the perception of Balochistan's job market is marked by constraints, especially for university graduates who face challenges in skill alignment and workplace conditions.

Qualitative insights highlight the various facets contributing to youth unemployment. The quality of education emerges as a central concern, generating graduates well-versed in theory but lacking practical skills crucial for job readiness. The subsequent mismatch between academic knowledge and industry requirements results in a workforce ill-prepared for the professional world. Government jobs remain a favoured choice, intensifying competition for limited positions, while issues of corruption and political influence further taint the fairness of employment processes. Gender disparities compound the challenge, with cultural norms and discrimination disproportionately affecting female job seekers.

Economic factors play a pivotal role, as inadequate industrial development and economic instability contribute to the scarcity of job opportunities. The ramifications of youth unemployment are far-reaching, spanning increased crime rates, social unrest, mental health concerns, and pervasive disillusionment among the youth. Moreover, the phenomenon drives brain drain as talented individuals seek better prospects outside the region. Addressing this intricate issue necessitates a comprehensive strategy encompassing educational reforms prioritising practical skills, fostering collaboration between academia and the private sector, promoting vocational training and entrepreneurship, and bolstering relevant industries through policy reforms. Ultimately, tackling youth unemployment in Balochistan demands a coordinated effort across sectors to mitigate its profound and wide-ranging impacts.

RQ-3. *Why do government interventions and policies concerning youth employment lack effectiveness in the Balochistan context?*

Government interventions and policies aimed at addressing youth unemployment in Balochistan lack effectiveness due to a complex interplay of factors, as evidenced by both quantitative and qualitative findings. One critical factor is the migration of rural youth to urban centres like Quetta in search of better job opportunities. This migration trend leads to an imbalance between job supply and demand, exacerbating the unemployment challenge. Additionally, cultural norms that link men's marriage with their chances of getting employment can drive early unions among unemployed youth, creating social pressures that influence career choices.

The education landscape further contributes to the issue. Limited career counselling services in educational institutions hinder informed career decisions. Furthermore, there's an overemphasis on formal education, neglecting the development of practical skills that are in demand by employers. The perception of a confined job market within Balochistan discourages youth from exploring opportunities beyond the province, fostering a sense of constraint that limits their horizons.

The mismatch between education and practical skills, coupled with inadequate work experience, further diminishes the employability of young individuals. Employers consistently highlight the need for improved education quality and relevant skills that align with industry needs. The lack of an ecosystem that supports practical skill development and work readiness hampers the effectiveness of government initiatives aimed at tackling youth unemployment.

Moreover, the size of Balochistan's economy poses a challenge, as it struggles to absorb the substantial youth population into available job opportunities. The dearth of substantial industrial development contributes to limited private sector growth and employment prospects. The dominance of government jobs as the preferred career path intensifies competition for limited positions, leading to issues of favouritism, corruption, and political influence in the recruitment process.

Furthermore, gender disparities play a role in exacerbating the problem. Societal norms and discrimination limit the job prospects of female youth, adding to the complexity of the unemployment crisis. The absence of an entrepreneurial ecosystem and an enabling environment for private sector growth constrains job creation efforts. Balochistan's security situation, political interference, and nepotism further hinder economic growth and job opportunities.

The consequences of youth unemployment are far-reaching, encompassing rising crime rates, social unrest, mental health issues, and a sense of frustration among the youth. Brain drain becomes a concern as talented individuals seek better opportunities elsewhere. The reliance on government jobs and the lack of private sector growth intensifies the unemployment challenge.

RQ-4. *What effective measures can be implemented to address the youth unemployment crisis in Balochistan?*

Addressing the youth unemployment crisis in Balochistan requires a concerted effort and a multifaceted approach. The combination of quantitative and qualitative findings highlights several effective measures that can be implemented to mitigate the challenges faced by the youth in the region:

1. Enhance technical education and vocational training: Prioritise technical and vocational education that aligns with the demands of the job market. Collaborations between educational institutions and industries can ensure that training is relevant and equips youth with practical skills.

2. Career counselling and entrepreneurship support: Strengthen career counselling services in educational institutions to guide students towards suitable career paths. Encourage entrepreneurship through training, mentorship, and access to funding to create job opportunities.

3. Public-private partnerships: Foster collaborations between the government, private sector, and NGOs to develop skill development programmes tailored to the local job market. These initiatives can offer internships, apprenticeships, and job placements to bridge the gap between education and employment.

4. Industry-academia linkages: Strengthen the connection between universities and industries to ensure that educational curriculum remains relevant to industry needs. Regular industry feedback can guide updates to curriculum content.

5. Supportive business environment: Create an environment conducive to business growth by streamlining regulations, providing incentives, and ensuring access to credit. This can stimulate job creation in the private sector.

6. Rural development and agriculture: Invest in rural development and agriculture to generate employment opportunities in non-urban areas. Supporting agribusinesses, modernising farming practices, and promoting value addition can enhance employment prospects.

7. Infrastructure development: Focus on infrastructure projects that provide short-term employment opportunities while fostering long-term economic growth. Improving road networks, utilities, and digital connectivity can generate jobs and enhance overall development.

8. Skill upgradation for the existing workforce: Develop programmes to upskill the existing workforce, helping them adapt to changing industry demands and reducing job displacement.

9. Job matching platforms: Establish online platforms that connect job seekers with potential employers, improving the efficiency of job matching and reducing information gaps.

10. Gender-inclusive policies: Implement policies that promote gender equality and encourage female participation in the workforce. Safe and supportive work environments, along with flexible work arrangements, can facilitate women's entry into the job market.

11. Promote remote work: Embrace the rise of remote work opportunities, allowing youth in Balochistan to access job opportunities without geographical constraints.

12. Youth empowerment programmes: Develop programs that empower youth with life skills, communication skills, and emotional intelligence. These skills complement technical abilities and improve overall employability.

13. Microfinance and entrepreneurial support: Facilitate access to microfinance and grants for aspiring entrepreneurs, particularly in rural areas. This can stimulate the growth of small businesses and create employment opportunities.

14. Government procurement preferences: Introduce preferences for local goods and services in government procurement, encouraging the growth of local industries and boosting job creation.

15. Data-driven policies: Continuously monitor and analyse labour market trends to inform evidence-based policies and interventions. Regular feedback loops can ensure that strategies remain effective and adaptable.

Implementing a combination of these measures, tailored to the specific needs of Balochistan's youth and labour market, can play a pivotal role in addressing the youth unemployment crisis. A collaborative effort involving educational institutions, the private sector, government entities, and civil society is essential to create a sustainable and inclusive solution.

Recommendations

Finally, addressing youth unemployment in Balochistan requires a comprehensive and collaborative approach involving policymakers, educational institutions, private sector entities, and civil society organisations. By implementing the following recommendations, the region can unlock its potential and provide better prospects for its young workforce, leading to economic prosperity and social well-being:

1. Promote private sector engagement: Encourage public-private partnerships to boost private investment and create job opportunities. Special Economic Zones (SEZs) can be established to attract private businesses and stimulate industrial growth.

2. Gender-inclusive policies: Facilitate female participation in the workforce by providing daycare centres, washrooms, and other support systems for female employees. Introduce gender-responsive budgeting and quota systems to enhance female representation in various sectors.

3. Career counselling and guidance: Strengthen career counselling services at educational institutions to help students make informed career choices. Job fairs and industry exposure can play a vital role in connecting students with potential employers.

4. Entrepreneurship and soft skills: Foster entrepreneurship among the youth and impart soft skills training, including communication, presentation, and critical thinking, to improve employability.

5. Industry-academia linkages: Establish strong industry-academia linkages by inviting business practitioners as guest speakers and organising seminars to enhance practical knowledge and research culture.

6. Decentralisation and inclusive policies: Decentralise funds to cater to youth-related programmes and introduce inclusive policies that prioritise youth development, particularly in underprivileged areas.

7. Development of border markets: Develop border markets in strategically located regions to capitalise on cross-border trade opportunities, leading to job creation and economic growth.

8. Revise the education system: Focus on providing relevant and market-driven education, incorporating both technical and vocational skills to address the employability gap.

9. Encourage local industry development: Promote local industry development and provide support to small and medium enterprises, which can create more job opportunities for the youth.

10. Strengthen the policy-making process: Involve key stakeholders, including the youth, in the policy-making process to ensure comprehensive and effective solutions. Think tanks should be established to contribute to evidence-based policy development.

11. Address brain drain: Implement measures to prevent brain drain by creating attractive opportunities within the region and encouraging talent retention.

12. Public-private initiatives: Encourage public-private initiatives and explore opportunities for innovation to capitalise on the strategic coastal area of Balochistan.

13. Enhance financial literacy: Impart financial literacy skills to empower the youth to explore entrepreneurship and access micro-credit for starting their businesses.

14. Promote skill-based education: Introduce skill-based education at the secondary level and focus on practical training, allowing youth to acquire employable skills from an early stage.

Limitations

As with any research, there are limitations to this study. The data collected may be subject to biases and some factors contributing to youth unemployment may not have been fully explored. Additionally, the dynamic nature of the labour market and economic conditions necessitates continuous monitoring and adaptation of policies. Further research and ongoing collaboration among researchers, policymakers, and stakeholders are essential to refine strategies and effectively address youth unemployment in Balochistan.

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ANNEXURES

Annex 1: Questionnaire for Youth

A- Personal information

1- Full name ……

2- Date of Birth ……

3- Gender

- o Female
- o Male

4- Address ……

5- Phone ……

6- Current place of residence

- o Rural area
- o Small town in rural area
- o Large city

7- Do you work and live in the same area (city/town/district) where you grew up?

- o Yes
- o No

8- Please specify your original place of residence.

- o Rural area
- o Small town in rural area
- o Large city

9- What is your current marital status?

- o Never married
- o Engaged to be married
- o Married
- o Separated/divorced
- o Widowed

10- What does your spouse currently do?

- o Attend education/training
- o Available and actively looking for work
- o Work for salary/wage with an employer
- o Work as an unpaid family member
- o Work as a self-employed worker

- o Engage in home duties (including childcare)
- o Unable to work owing to sickness or disability
- o NA (in case of separated/divorced/widowed)
- o Other

11- Do you have children?

- o Yes
- o No

12- How many children do you have? ----------

13- What is the highest level of your education of your father?

- o No schooling
- o Elementary education
- o Vocational education
- o Secondary school
- o University
- o Post-graduate studies
- o Other

14- What is the highest level of your education of your mother?

- o No schooling
- o Elementary education
- o Vocational education
- o Secondary school
- o University
- o Post-graduate studies
- o Other

15- What are the occupations of your father?

	Father	**Mother**
Professional, technical and related worker		
Administrative, managerial work		
Clerical and related worker		
Sales worker		
Agricultural worker		
Factory/production worker		
Government/public sector worker		
Armed forces		
Home-based worker/subcontractor		
Other service worker		
Unpaid family worker		
Housework		
Student		
Unemployed/looking for work		
Retired		
Disabled		
Parent deceased		
Other		

16- What is the number of persons in the household where you currently live? ----------

17- On average, what is the total income of your household (family) per month? ----------

18- How many persons in the household work for a salary/wage? ----------

19- How many persons are in the household who are without work? ----------

B- Education

1- Most recent educational activity

- o I have never studied (→ if yes, please go to C1)
- o I left before graduation (→ if yes, please go to C1)
- o I have completed my high school education (e.g., pre-engineering or pre-medical)
- o I am currently enrolled in undergraduate study program
- o I am currently enrolled in postgraduate study program
- o I have completed my undergraduate studies
- o I have completed my postgraduate studies

2- Please state the date/year you completed your studies……..

3- Did you work while you studied (or do you work while you study)?

- o Yes
- o No

4- Please describe your work

- o Internship/apprenticeship in private company (e.g., bank)
- o Internship/apprenticeship in public sector
- o Internship/apprenticeship in non-profit organisation
- o Work in family business
- o Work on farm
- o Work in private company
- o Work in public sector
- o Community volunteer work
- o Work in the informal economy
- o Other

5- Was the work paid

- o Paid?
- o Unpaid?

6- How many hours per week did (do) you work? ……..

7- What was (is) your main motivation in working while studying?

- o To earn money
- o To gain work experience

- o To make connections that could lead to future employment
- o Other

C. Opinions and Aspirations

1- In your opinion, a person needs at least what level of education/training to get a decent job these days?

- o Elementary education (up to age 13)
- o Vocational education (e.g., technician, tradesman, or artisan)
- o Secondary education – SSC level (Grade 9-10 – Matriculation or O level)
- o Higher secondary education – HSSC level (Pre-medical, Pre-engineering, A level etc)
- o Undergraduate studies (e.g., Bachelor's degree)
- o Post-graduate studies (e.g., Master's degree)
- o Other

2- Could you please tell me about the most important goal in your life? (select one)

- o Being successful in work
- o Contributing to society
- o Participating in local community affairs
- o Upholding religious faith (such as being an exemplary Muslim)
- o Having lots of money
- o Having a good family life
- o Having leisure time
- o Having a lot of different experiences
- o Finding purpose and meaning in life
- o Building self-esteem and confidence, and finding personal fulfillment

3- Which of the following qualities do you think is the most useful in finding a good job? (select one)

- o Information technology skills
- o Scientific or technical qualifications
- o Command of languages
- o Knowledge of the business world
- o Communication skills
- o Teamwork skills
- o Good general education
- o Good appearance
- o Ambition
- o Having completed an apprenticeship or an appropriate training course
- o Other

4- Ideally, which type of work would you prefer?

- o Start your own business
- o Work for the government/public sector
- o Work for a multinational corporation

- o Work for a private company
- o Work for a non-profit organization
- o Work for own/family farm
- o Work for family business
- o Not sure
- o Do not wish to work
- o Happy with current type of business/would not change
- o Other

5- Ideally, which sector do you prefer to work in?

- o Agriculture, hunting, forestry, and fishing
- o Mining
- o Manufacturing
- o Electricity, gas, and water supply
- o Construction
- o Wholesale and retail trade, repair
- o Hotels and restaurants
- o Transport, storage, and communications
- o Finance/insurance
- o Real estate, renting and business activities
- o Public administration and defence
- o Education
- o Health and social work
- o Other community, social and personal services
- o Private household service
- o Happy with current sector/would not change
- o Not sure
- o Do not wish to work
- o Other

D. Youth in Education

1- What do you plan to do after completing your current studies?

- o Look for a job
- o Stay at home
- o Immediately go for further education/training
- o Do not know
- o Other

2- Have you already started looking for a job?

- o Yes
- o No

3- How are you looking for a job?

- o Through education/training institution
- o Attending job fairs (e.g., BUITEMS job fair)
- o Directly contacted employers
- o Seeking assistance from friends and relatives (personal connections)
- o Arranging for financial resources
- o Other

4- What is the highest level of education you expect to complete?

- o Elementary education (up to age 13)
- o Vocational education (e.g., technician, tradesman, or artisan)
- o Secondary education – SSC level (Matriculation or O level)
- o Higher secondary education – HSSC level (Pre-medical, A level, etc)
- o Undergraduate studies (e.g., Bachelor's degree)
- o Post-graduate studies (e.g., Master's degree)
- o Other

5- What specialization (field) would you like to study?

- o Science
- o Literature/arts
- o Commerce/business administration
- o Industry/Technical
- o Education
- o Engineering
- o Health Sciences
- o Medicine
- o Other

6- Do you agree (or disagree) that our economy has limited capacity to absorb graduating youth to good (decent) jobs?

- o Strongly agree
- o Agree
- o Disagree
- o Strongly disagree

7- Do you believe that your education limits the job options for you in Balochistan?

- o Strongly agree
- o Agree
- o Disagree
- o Strongly disagree

8- If yes to Question 7, have you tried searching for a job outside Balochistan?

- o Yes
- o No

9- Have you studied in Balochistan?

- o Yes
- o No

10- If yes to Question 9, do you agree (or disagree) that your performance in the job market would have been better if you had acquired education from outside Balochistan in Pakistan?

- o Strongly agree
- o Agree
- o Disagree
- o Strongly disagree

11- Do you agree (or disagree) that rather than acquiring formal education, youth should focus on technical education?

- o Strongly agree
- o Agree
- o Disagree
- o Strongly disagree

E. Unemployed Youth

1- Are you looking for work (job) or planning to start/establish your own business?

- o Yes
- o No

2- During the last month, have you taken any steps to find work or establish your own business?

- o Yes
- o No

3- What steps did you take to seek work during the past four weeks?

- o Through education/training institution
- o Attending job fairs
- o Directly contacted employers
- o Seeking assistance from friends and relatives (personal connections)
- o Arranging for financial resources
- o Other

4- How long have you been available for work and actively looking for a job?

- o Less than a week
- o 1-4 weeks
- o 1-2 months
- o 3-6 months
- o 6 months - 1 year
- o More than 1 year

5- What sort of jobs you are looking for (occupation)?

- o Clerical job
- o Technical job
- o Administrative job
- o Managerial job
- o Other

6- Have you ever refused a job that was offered to you?

- o Yes
- o No

7- Why did you refuse it?

- o Wages/salary offered were too low
- o Work was not interesting
- o Location was not convenient
- o Work would not match my level of qualifications
- o Work was not permanent
- o Waiting for a better job offer
- o Saw no possibilities for advancement
- o Other

8- Would you be more likely to...

- o Accept any job, whatever the conditions
- o Accept any job, provided it is stable
- o Accept any job, provided it was well-paid
- o Accept any job, provided it is appropriate to my level of qualification
- o Accept a job only if it is stable, well-paid and if it is appropriate to my level of qualification
- o Other

9- Is there a minimum level of income/salary per month below which you would not accept a job?

- o If, yes, how much?……..
- o No, why? ……

10- Have you received any advice/help/assistance from anyone?

- o None
- o Advice on how to search for a job
- o Information on vacancies
- o Guidance on education and training
- o Any other

11- What have you mainly been doing while looking for a job?

- o Staying at home and only looking for a job
- o Staying at home and also responsible for household duties
- o Helping in family business

- o Taking additional education/training courses
- o Spending time with friends
- o Doing volunteer work (without pay)
- o Planning to start own business
- o Other

12- Since you started looking for work, how many jobs have you applied for? ……..

13- Since you started looking for work, how many interviews have you been to? ……

14- Would you consider moving to other places (i.e., cities or provinces) to find work? (can mark more than one option)

- o No ……..
- o Moving to capital city ……..
- o Moving to a town/city (other than capital city) ……..
- o Moving to a rural area ……..
- o Moving to another country ……..
- o No preference……..

15- What has been the main obstacle in finding a good job?

- o No education
- o Unsuitable education
- o Mismatch between education requirements and that received
- o No work experience
- o Not enough jobs available
- o Considered too young
- o Being male/female
- o Discriminatory prejudices (for example, disability, religion, appearance, etc.)
- o Low wages in available jobs
- o Poor working conditions in available jobs
- o Other

16- Do you feel the education/training you received in the past is useful in getting a job?

- o Very useful
- o Somewhat useful
- o Not useful
- o Not sure

17- What kind of training do you think would be most helpful in finding a job?

(Scale: 1 – least important and 5 – most important)

- o Completion of university ----------
- o Apprenticeship (internship) with an employer ----------
- o Computer and IT training ----------
- o Other types of training or skills) (proficiency in the use of technology or knowledge management competencies)
- o Foreign language ----------

- o Professional training ----------
- o Other ----------

18- Do you plan to continue your education/training at a later stage?

- o Yes
- o When? (month, year)
- o No (why – any reason)
- o Do not know yet

19- What is the highest level of education/training you expect to attain?

- o Undergraduate
- o Post-graduate studies
- o Other

20. Any other comment?

……
……

F. Participant's Consent Form for Video Interviews

Would you like to participate in a video interview for a documentary on youth unemployment In Balochistan?

- o Yes
- o No

If yes, please complete the below details:

Full Name ……

Mobile Number……

Email address……

Please sign here: ……

Annex 2: Questionnaire for Employers

A- Characteristics of the enterprise (company/organization) and Respondent

1- Full name of respondent ……..

2- Age of respondent……..

3- Gender of respondent

- o Female
- o Male

4- Job title of respondent……..

5- Name of the enterprise/company/organization……..

6- Address of the enterprise……...

7- Phone/email of respondent……

8- How long has the enterprise/business been in existence? ……

9- What would best describe the enterprise/business/organization?

- o Family business
- o Government/public sector enterprise
- o Branch of a foreign enterprise/company
- o Private company
- o Non-profit organization
- o Other

10- In which industry does this enterprise/business/organization operate?

- o Agriculture, hunting, forestry and fishing
- o Mining
- o Manufacturing
- o Electricity, gas and water supply
- o Construction
- o Wholesale and retail trade, repair
- o Hotels and restaurants
- o Transport, storage and communications
- o Finance/Insurance
- o Real estate, renting and business activities
- o Public administration and defence
- o Education
- o Health and social work
- o Other community, social and personal services
- o Other

11- What are the two most important worker (or employee) related issues your company/business is currently facing?

- o Quality of labour force (e.g., insufficient training or education)
- o Lack of motivation
- o Poor employee productivity
- o Labour shortages
- o Labour costs
- o Employee turnover
- o Others

B. Recruitment and Employment of Young People

1- How many persons in total does your organization employ (are working with you)?

……

2- Out of the total number of persons employed in your workplace, roughly what percentages are:

- o Above 29 years
- o Between 15-29 years
- o Below 15 years

3- Have you faced problems recruiting the kinds of workers you require for your enterprise or business?

- o Yes
- o No

4- For your kind of business/enterprise, if you had to hire someone, would you prefer to hire:

Age

- o Workers < 15 years of age
- o Workers between 15 and 29 years
- o Workers > 29 years of age
- o No preference

Gender

- o Female workers
- o Male workers
- o No preference

Marital status

- o Unmarried workers
- o Married workers
- o No preference

Education

- o Completed elementary education
- o Completed vocational training
- o Completed secondary education
- o Completed university
- o Completed post-graduate studies
- o No preference

Graduates from Balochistan or the Rest of Pakistan

- o Do you prefer applicants from Balochistan who have studied in Balochistan?

  If yes, what is the main reason?

  ……

  ……

- o Do you prefer applicants from outside Balochistan who studied in Balochistan?

  If yes, what is the main reason?

  .....
  .....

- o Do you prefer applicants from Balochistan who have studied outside of Balochistan (the rest of Pakistan)?

  If yes, what is the main reason?

  .....
  .....

- o Do you prefer applicants from outside Balochistan who studied outside Balochistan?

  If yes, what is the main reason?

  .....
  .....

5- In your opinion, what are the two most important aspects that young people look for when applying for a job?

- o Interesting job to do
- o Job that people regard highly/status of the job
- o Earn a lot of money
- o Good promotion prospects/clear career path
- o Job that uses skills and abilities
- o Steady job/job security
- o Having a role in decision-making
- o Having lots of vacation time
- o Having an easy pace of work
- o Being able to work independently, without supervision
- o Job that is family-friendly
- o Opportunities for travel
- o Other

6- Based on your experience interviewing young job applicants, please rate the general aptitude level of job applicants in the following skills or behaviour) on a scale of 1 to 5, 1 being "excellent" and 5 being "very poor"

	Excellent	Good	Adequate	Poor	Very poor
Writing skill	1	2	3	4	5
Technical skills	1	2	3	4	5
Oral communication skills	1	2	3	4	5
Breadth of educational training	1	2	3	4	5
Ability to apply knowledge	1	2	3	4	5
Job commitment and discipline	1	2	3	4	5
Realistic expectations about work	1	2	3	4	5

Social (networking) skills	1	2	3	4	5
IT Skills	1	2	3	4	5
Marketing/ branding skills	1	2	3	4	5
Overall	1	2	3	4	5

7- In hiring workers, what are important aspects you look for in the worker on a scale of 1 to 5, 1 being "Highly important" and 5 being "Not important at all"

	Highly important	Moderately important	Low importance	Not important at all
Age	1	2	3	4
Education	1	2	3	4
Marital status	1	2	3	4
Past training	1	2	3	4
Job experience	1	2	3	4
Other	1	2	3	4

8- In your opinion, what areas do educational institutes (universities) focus on to enhance youth employment prospects?

- o Enhancing curriculum
- o Improving the quality of education
- o Assisting students to have internship opportunities
- o Students' interpersonal (soft) skills enhancement
- o Students' technical skills enhancement
- o Other

9. To what extent do you agree or disagree with this statement: "Colleges and universities in Balochistan are delivering quality education/training programs to young people"?

- o Strongly Disagree
- o Disagree
- o Neither Agree or Disagree
- o Agree
- o Strongly Agree

10. To what extent do you agree or disagree with this statement: "Colleges and universities outside Balochistan are delivering quality education/training programs to young people"?

- o Strongly Disagree
- o Disagree
- o Neither Agree or Disagree
- o Agree
- o Strongly Agree

11. To what extent do you agree or disagree with this statement: "Job applicants with technical education perform better than university graduates"?

- o Strongly Disagree
- o Disagree
- o Neither Agree or Disagree
- o Agree
- o Strongly Agree

12. What are the major shortcomings in young job applicants acquiring their first job?

---

13. Do you think that Balochistan's job market is friendly/accommodating to fresh university graduates/ job seekers?

- o Yes
- o No

14. Do you prefer experience over education or education over experience?

- o Experience over education
- o Education over experience
- o We value both experience and education

15. Do you think that e-commerce has upgraded or deteriorated the labour market?

……

16. Do youth switch jobs frequently in your industry?

- o Yes
- o No

17. If yes, to 16, what is the main reason?

……

18. Do you as an employer let your employees switch jobs easily or do you try to retain them by making a counter offer?

……

19. Do you find employee replacements easily in your line of business?

……

20. What are the major labour issues in your industry (please specify three main ones)?

……

21. Any other comments?

……

C. Participant's Consent Form for Video Interviews

Would you like to participate in a video interview for a documentary on youth unemployment In Balochistan?

Please note that you are under no obligation to accept this invitation. However, if you agree to participate, you have the right to answer any specific question. At the end of the study, you will be provided with a summary of the project findings.

o Yes
o No

If yes, please complete the below details:

Full Name ……

Company/organization ……

Designation……

Mobile/phone number……

Email address……

Please sign here: ……

Annex 3: Interview Guide: Key Informants

- What is your title or role in your organization (or community)?
- How do you describe youth unemployment in the context of Balochistan?
- What do you think are the main concerns of young people in Balochistan?
- What are the main causes of youth unemployment? Please explain
- What do you consider the most important issues, challenges, or constraints for policymakers in addressing the youth unemployment issue in Balochistan?
- Over the past few years, what specific youth development initiatives have been taken by the national government to overcome these challenges in the province?
- What specific youth development initiatives have been taken by provincial governments to overcome these challenges in Balochistan?
- From what you know, what are the consequences of youth unemployment?
- Could you please tell me how youth unemployment be addressed?
- What is the role of the government in addressing the youth unemployment issue?
- What is the role of civil society organizations in tackling employment issues faced by young people in Balochistan?

- Based on your experience, to what extent national government create opportunities for young people in Balochistan?
- What are the key challenges (structural, political, social, personal, etc.) that hinder young people from securing jobs in Balochistan?
- How can youth be supported and nurtured to obtain suitable employment?
- What specific resources, skills, competencies, and capabilities could enable youth to obtain suitable jobs?
- What changes (if any) are required to enhance opportunities for young people to obtain suitable jobs in the labour market?
- Looking to the next three to five years, how do you see the future for young people in the province?
- Is there anything else that you would like to add about the topics we discussed?

Annex 4: Interview Guide: Employer

- What is your title or role in your organization?
- Where do you work?
- What would best describe the enterprise/business? (e.g., a private company, government entity, NGO, etc.)
- In which industry does this organization operate?
- How do you describe youth unemployment in the context of Balochistan?
- In your opinion, what are the main concerns of young people when they apply for a job?
- What are the main causes of youth unemployment? Please explain
- From what you know, what are the consequences of youth unemployment?
- Could you please tell me how youth unemployment be addressed?
- What are the key challenges (structural, political, social, personal, etc.) that hinder young people from securing jobs in Balochistan?
- How can youth be supported and nurtured to obtain suitable employment?
- In hiring workers, what is the most important characteristic you look for in the worker?
- Are you satisfied with the performance of new graduates you have recently interviewed or hired in your organization?
- What specific resources, skills, competencies, and capabilities could enable youth to obtain suitable jobs?
- In your opinion, what areas do educational institutes (universities) focus on to enhance youth

employment prospects?

- Is there anything else that you would like to add about the topics we discussed?

Annex 5: Interview Guide: Youth

- What is your name?
- What is your current place of residence?
- What is your original place of residence? (District etc.)
- What is your current marital status?
- What does your spouse currently do? (if applicable)
- Do you have children? (if applicable)
- How many children do you have? (if applicable)
- Could you please tell me about your most recent educational activity?
- Did you work while you studied (or do you work while you study)?
- Could you please describe your work/job?
- How many hours per week did (do) you work?
- Why did you leave your job? (if applicable)
- What did you do when you were unemployed?
- How do (did) you manage your finances?
- Did unemployment impact your well-being and mental health?
- How long have you been available for work and actively looking for a job?
- What sort of jobs you are looking for (e.g., occupation)?
- Have you received any advice/help/assistance from anyone?
- Since you started looking for work, how many jobs have you applied for?
- Since you started looking for work, how many interviews have you been to?
- Would you consider moving to other places (i.e., cities or provinces) to find work?
- What has been the main obstacle in finding a good job?
- Do you feel the education/training you received in the past is useful in getting a job?

- What kind of training do you think would be most helpful in finding a job?
- Generally speaking, what do you believe are the most important causes of youth unemployment in Balochistan, and how these can be best addressed?
- Could you please tell me about the most important goal in your life?
- Are you looking for work (job) or planning to start/establish your own business?
- What would you have liked to do? Ideally, which type of work would you prefer?
- Do you believe that our economy has a limited capacity to absorb graduating youth to good (decent) jobs? Please explain
- Do you think that your education limits the job options for you in Balochistan?
- If yes, have you tried searching for a job outside Balochistan?
- Have you studied in Balochistan?
- Do you think your performance in the job market would have been better if you had acquired your education from outside Balochistan in Pakistan?
- What are your future plans?
- How do you feel when you think about the future?

SKILLED WOMEN'S SELF-EMPLOYABILITY AND TVET PROGRAMMES IN BALOCHISTAN: AN EMPIRICAL RESEARCH

Nagina Gul, Niamat Ullah Baloch, and Mrestyal Khan

ABSTRACT

TVET programmes are increasingly acknowledged for equipping women with vital skills to meet the dynamic labour market demands. However, a research gap exists regarding the specific impact of TVET on women's self-employability. This study attempted to address this gap. We employed a mixed-methods approach to investigate skilled women's self-employability and TVET programmes in Balochistan. Quantitative data from 368 enrolled and graduated female TVET students in Quetta, Balochistan was collected using a self-administered survey. Additionally, qualitative research involved in-person and focus group interviews with 27 participants, including TVET female graduates, skilled women entrepreneurs, and subject matter experts. Thematic analysis was conducted to interpret experiences and opinions. The findings underscore both positive aspects and challenges faced by women entrepreneurs within TVET programmes. Qualitative insights shed light on work-family imbalances experienced by self-employed women due to traditional gender roles and societal expectations, leading to time and energy constraints. Despite encouraging changes in family dynamics supporting female entrepreneurship, barriers such as unfair expectations, limited credit access, inadequate funding resources, and complex loan procedures persist for women in micro and small enterprises. Social constraints, family commitments, and interpersonal skills emerged as additional influences on women's entrepreneurial success. Based on these insights, our study advocates government agencies and local bodies to offer family support services, empowering women entrepreneurs, and alleviating familial-business balance burdens. Addressing identified bottlenecks will create an enabling environment for women entrepreneurs, contributing to broader socioeconomic growth in the region. By strengthening TVET's role in enabling women with valuable skills and supporting their entrepreneurial aspirations, we can strive for a more inclusive and equitable economic landscape in Balochistan.

1. INTRODUCTION

Technical and Vocational Education and Training (TVET) in Pakistan is shaped by a complex historical narrative of socioeconomic demands, educational paradigms, and policy frameworks. Rooted in colonial industries, vocational education gained traction pre-independence (Smith & Zook, 1998). Post-1947 partition, Pakistan pursued self-reliance and industry growth, accentuating skilled workforce needs. Post-independence Five-Year Plans integrated TVET into national curricula, with subsequent decades establishing vocational centres and polytechnic institutes to meet sectoral demands. NAVTEC's establishment in 2005 facilitated public-private partnerships, while 21st-century technology revolutionised pedagogy. Persistent challenges include curriculum-industry misalignment and gender disparities (Hussain et al., 2021). Addressing these requires refined strategies, industry engagement, and gender-sensitive policies.

Over the past few decades, TVET in Pakistan has undergone a significant transformation from a focus solely on workforce preparation to a comprehensive integration of practical skills, technology, and knowledge. This shift positions TVET as a framework for human capital development, catering to the demands of industrialisation and economic growth (Hassan & Siwar, 2021). As the global landscape changes due to globalisation, technological advancements, demographic shifts, and environmental changes, the workforce faces new challenges and expectations (Marope et al., 2015). An adept and skilled workforce is pivotal in driving industrialisation, achieving economic progress, and attracting foreign direct investment (Hussain et al., 2021). Vocational education plays a crucial role in meeting the demands of the evolving job market, providing enhanced training and upskilling individuals to meet the evolving needs of industries. The association of vocational education with professional and economic advancement further emphasises the importance of prioritising TVET as a crucial element for economic growth and societal development (Edokpolor & Abusomwan, 2019).

TVET has been recognised globally as a means of equipping individuals, including women, with practical skills and knowledge to enter the labour market and engage in self-employment. In the context of Balochistan, where gender disparities in education and economic opportunities persist, understanding the impact of TVET programmes on women's self-employability is crucial for fostering inclusive economic growth and gender equality. TVET programmes have garnered increasing recognition as effective means of equipping women with valuable skills to navigate the rapidly fluctuating labour market. TVET aims to bridge the gap between education and the workforce, preparing learners, including women, for specific trades, occupations, and professions with practical and industry-specific competencies. These programmes are believed to enhance individuals' employability prospects, particularly for women, by providing them with hands-on training and theoretical understanding in various fields, such as engineering, technology, healthcare, agriculture, business, and others.

With Balochistan experiencing economic growth, there is a growing recognition of the need to focus on social and human development, particularly in empowering capable women. A comprehensive assessment of self-employment drivers in the literature found that completing apprenticeship training enhances the likelihood of individuals becoming self-employed. Recognising the importance of women's economic contributions and empowerment is vital for enabling them to exercise control over their lives and make a meaningful impact on society. Ultimately, empowering women economically can serve as a catalyst for long-term development.

Amidst the modern-day Industrial Revolution, technical vocational education and training (TVET) has gained comprehensive attention in the realm of education due to its distinct qualities (Asad et al., 2023). TVET integrates practical skills, technological advancements, and knowledge, encompassing both general and career-specific practices. Recent decades have witnessed a paradigm shift in TVET, driven by advancements in employment trends and labour market requirements, transforming it into a framework for human capital development, focusing on industrialisation (Hassan & Siwar, 2021). Germany's approach to TVET highlights the significant societal influence attributed to highly skilled professionals (Okoli et al., 2016). Pakistan, with a substantial youth population, necessitates skilled TVET graduates to meet labour market demands and contribute to economic

progress. Vision 2025 outlines the objectives to transform Pakistan into a well-developed and industrialised nation by 2025. However, challenges persist, such as high school dropout rates, hindering the country's progress in attaining a skilled workforce. Nurturing a trained and qualified workforce is crucial for achieving sustainable economic growth and meeting global standards (Ustilaitė et al., 2024).

In Pakistan, TVET programmes play a crucial role in addressing the significant demand for individuals equipped with vocational skills, especially in a low-income country where female labour force participation stands at approximately 20 per cent. TVET's effectiveness lies in generating employment opportunities and enhancing the productivity of individuals, with participants often achieving higher incomes than their academically-oriented counterparts when the education aligns with industry requirements. Gebremeskel (2023) revealed that trainer competence, dedication, and trainee characteristics strongly influence the attainment of graduate core competency in TVET.

Given the pressing need to empower women economically and bridge gender disparities in Pakistan, entrepreneurship becomes a vital avenue for competent women to explore ideas and contribute to the economy and society. However, Pakistan faces significant challenges in gender parity, ranking disappointingly low on the global gender gap index, underscoring the need for substantial improvements in gender equality (WEF, 2021). In the context of TVET, Minani & Sikubwabo (2022) highlight its crucial role in women's empowerment, equipping them with practical skills and entrepreneurship abilities. Nevertheless, women entrepreneurs still face unique challenges, necessitating further research and targeted policies. In Balochistan, the least-developed province of Pakistan, the TVET system's evaluation becomes essential to match skill requirements for potential China-Pakistan Economic Corridor (CPEC) projects, necessitating strategic decisions and policy reform (Minani & Sikubwabo, 2022). Globally, the increase in skilled women entrepreneurs has garnered attention, yet women still face unequal prospects in entrepreneurship, driven by structural factors and social constraints. Addressing these challenges is essential for promoting women's economic empowerment and fostering inclusive growth in Balochistan and beyond.

Despite the growing recognition of the overall effectiveness of TVET, there exists a significant research gap concerning the specific impact of these programmes on women's self-employability (Ahmed et al., 2022). This gap is particularly pronounced in the context of Balochistan, where gender disparities in educational and employment opportunities persist, further underscoring the importance of understanding how TVET influences women's entrepreneurial aspirations and success to advance women's economic empowerment and foster inclusive growth. To address this research gap, our study employs a comprehensive mixed-methods research approach, encompassing both quantitative and qualitative methods, to examine skilled women's self-employability and the role of TVET programmes in Balochistan.

The research aims to establish a robust framework for designing empirically-based programmes that effectively support women in their pursuit of self-employment and improve their business success. Additionally, the study seeks to contribute to the theoretical understanding of the relationship between TVET investment and economic development, addressing gaps and controversies in the empirical evidence related to the significance of competent women in driving economic growth. By providing well-supported findings, the research aims to contribute to the ongoing debates and steer future development and economic growth in Balochistan, thus aligning with the broader goal of achieving the SDG "Quality Education" through education's role in fostering overall welfare and societal development (Kissi et al., 2020; Okwelle & Wordu, 2014; Watters et al., 2013; Sunde & Vischer, 2015).

The significant contributions of women to the growth of nations and societies are widely acknowledged. Female entrepreneurs, in particular, play a crucial role in driving economic growth, creating employment opportunities, and fostering innovation within their respective countries (Ladge et al., 2019; Lenka & Agarwal, 2017; Zeb & Ihsan, 2020). The number of working women, especially female entrepreneurs, has been on the rise worldwide (Staniewski & Awruk, 2019; Tambunan, 2011; Zainol & Al Mamun, 2018). The participation of women

entrepreneurs significantly contributes to a country's economic prosperity. In innovation-driven economies, women entrepreneurs often require minimal instrumental support from their families and encounter less gender discrimination in accessing funding, thanks to robust government support for businesses. This favourable environment empowers women to achieve greater self-sufficiency and financial confidence (Welsh et al., 2016). Recognising the importance of women's economic contributions and empowerment, along with reinforcing their rights and autonomy, is vital in enabling them to take control of their lives and make a meaningful impact on society. Ultimately, the economic empowerment of women can act as a catalyst for long-term development.

Problem Statement

The TVET system in Balochistan has a longstanding presence, but there is a need for a comprehensive understanding of its implementation and perception among all stakeholders. When considering reforms in vocational systems, it is crucial to critically assess and align them with national objectives (Euler, 2013). This study aims to investigate the perspectives and aspirations of female TVET students in Balochistan, delving into their current educational experiences and future career prospects. By doing so, the research seeks to provide valuable insights into the TVET landscape in Balochistan and inform efforts to enhance educational and career pathways for female students. The current financial crisis has exacerbated challenges related to elderly populations, labour shortages, unemployment, inequality, and poverty, alongside strict immigration laws protecting local jobs (Svobodova & Cerna, 2018). Restructuring TVET solely for skilled women is insufficient in augmenting human capital; continuous upskilling of the existing workforce is equally crucial (WEF, 2021). The OECD countries have recognised the correlation between increased female unemployment rates and the implementation of TVET programmes.

TVET in Pakistan faces various challenges, including limited industrial linkages, high unemployment rates, insufficient teacher preparation, and low female participation (Kazmi & Abbas, 2020). While the study highlights the positive outcomes of TVET implementation, such as increased profitability, salary growth, and enhanced employment opportunities for skilled women (Mustafa et al., 2017), effective empowerment of women with advanced skills requires strong linkages between TVET institutions and sectors seeking talented women (Oviawe, 2018). This research aims to examine the role of TVET institutes in promoting women's self-employment skills and evaluate existing TVET programmes in Quetta, Balochistan, addressing the lack of investigation into the factors underlying the empowerment of skilled women. According to Bano et al. (2022), TVET institutions, despite rapid expansion, face challenges due to inadequate human resources and physical infrastructure. The rising demand for skilled workers necessitates exploring the potential link between enhancing self-employability among skilled women through TVET and job creation. However, empirical evidence on this notion is scarce. Thus, the study aims to fill this knowledge gap by investigating four guiding research questions.

Research Objectives

1. To analyse the TVET institutes' role in promoting women's hands-on skills in Quetta, Balochistan.

2. To identify the factors that contribute to the success of TVET programmes in enhancing the self-employability of skilled women in Balochistan.

3. To examine the perceptions of enrolled and pass-out women regarding TVET institutes' role in promoting their self-employment skills in Quetta, Balochistan.

4. To examine the challenges and barriers that skilled women face in accessing and participating in TVET programmes in Balochistan.

Research Questions

1. What is TVET institutes' role in promoting women's hands-on skills in Quetta, Balochistan?
2. What are the factors that contribute to the success of TVET programmes in enhancing the self-employability of skilled women in Balochistan?
3. How do enrol and pass-out women perceive TVET institutes' role in promoting their self-employment skills in Quetta, Balochistan?
4. What are the challenges and barriers that skilled women face in accessing and participating in TVET programmes in Balochistan?

Purpose of the Study

This research project aims to investigate the link between skilled women's self-employability and TVET programmes, specifically their impact on women's job creation through hands-on product-based training in Quetta, Balochistan. Addressing the challenges of skilled women unemployment and poverty in the region, equipping women with entrepreneurial skills via TVET and stakeholder collaboration could mitigate pandemic-related setbacks. The research underscores the economic growth potential of women's self-employment and entrepreneurship for generating jobs. Recognising women as integral to development, the study underscores the government's commitment to nurturing women's self-employment skills for sustainable development. TVET's role in building a skilled workforce is acknowledged, with implications for policymakers, authorities, and corporations. The study provides guidelines for inclusive economic progress and policy formulation.

2. LITERATURE REVIEW

In the contemporary landscape, the strategic significance of TVET institutions in the cultivation of skills and enhancement of women's self-employability has garnered substantial scholarly attention, particularly within locales characterised by pronounced gender disparities and limited avenues for formal education (Smith & Zook, 1998). This investigation centres its focus upon Quetta, the capital of Balochistan province in Pakistan, to elucidate the nuanced impact of TVET on women's skills acquisition and entrepreneurial ventures within a distinctive socio-cultural backdrop.

In the global discourse on gender equality, the exploration of TVET's role in bridging women's skills and employment gaps aligns with SDGs (SDG 5 and SDG 8). This review meticulously evaluates TVET's contribution to women's practical skill development in Quetta. By examining programme effectiveness, women's perspectives, and challenges, this study provides insights crucial for policy refinement. Despite TVET's significance in skill enhancement, limited research exists on its impact in gender-disparate regions (Smith & Zook, 1998). This study addresses this gap by scrutinising TVET's influence on women's entrepreneurship in Quetta, investigating impact scale, programme determinants, learner perceptions, graduates' experiences, and barriers to TVET access.

It nurtures economic growth, social equity, and environmental sustainability. TVET's relevance is paramount in emerging economies, adapting to evolving economic needs (Azeem et al., 2022). The inclusion of industries in skills training design, as highlighted by Yamada et al. (2020), enhances effectiveness. Similarly, Gul et al. (2019) stress TVET's core aim of empowering women with skills for employment and entrepreneurship. Governments globally strive for gender parity, particularly in entrepreneurship, but Pakistan faces gender imbalance, with males outnumbering females by 6.57 million. The 'Global Gender Gap Report 2021' ranks Pakistan 153rd out of

156 nations, with a widening gender gap (WEF, 2021). Despite regional challenges, Pakistan's progress in standard of living, life expectancy, and education is notable, revealing complex gender inequalities in the Pakistani context.

Technical and Vocational Education in Asia

Looking at the development trajectory of Asian countries can offer valuable insights and lessons on strategies that can be implemented to create decent and productive employment. These insights could be useful for Pakistani policymakers in developing effective employment policies and programmes. By studying the experiences of other countries in the region, Balochistan can identify successful approaches and best practices that can be adapted to its unique circumstances and challenges, ultimately leading to the creation of more and better employment opportunities for its skilled women. One crucial lesson drawn from East/South East Asia is the significance of implementing an industrial policy that targets sectors with potential for employment growth, as emphasised by Felipe-Lucia et al. (2015). Various perspectives exist regarding the outcomes of TVET in Asian countries, with government initiatives playing a pivotal role in these nations. Notably, the VET systems in Korea, Singapore, and Japan serve as exemplary models of mature systems, making substantial contributions to economic growth. Nonetheless, China's experience demonstrates the potential of TVET to drive economic growth and create employment opportunities.

TVET in Pakistan

The TVET sector in Pakistan faces multifaceted challenges, including outdated curricula, inadequate training quality, weak governance structures, limited funding, industry disconnection, job scarcity, and negative perceptions of vocational education. Gender disparity is pronounced, with cultural barriers inhibiting women's participation. The sector's economic importance is significant. The establishment of the National Vocational Technical Education Commission (NAVTEC) in 2005 aimed to enhance TVET. Initially, technical roles were male-dominated, reflecting societal norms. In the context of globalisation, Pakistan must leverage TVET to meet modern economic demands.

In the current era of globalisation and the emergence of novel economic and societal paradigms, Pakistan grapples with an array of challenges. To effectively respond to the demands of contemporary economic currents, extant educational frameworks must adeptly harness the potential of TVET as an instrument to meet the requisites of globalisation (Azeem et al., 2022). Training involves collaboration between institutions like polytechnics, private centres, and vocational establishments, as well as urban and rural development entities. Empowering women through TVET is pivotal for Balochistan's economic growth, necessitating strategic skill development and human resource nurturing (Ahmed et al., 2020).

TVET's Role in Promoting Women's Hands-on Skills

The role of TVET institutes in enhancing women's hands-on skills and employability has gained scholarly attention (Smith et al., 2018). In the specific context of Quetta, Balochistan, TVET institutes play a crucial role in addressing gender disparities by equipping women with practical skills. The importance of practical skills has considerably aided women's empowerment by allowing them to enter fields previously held by males, growing their self-confidence and self-esteem, and improving their access to job prospects. According to Minani & Sikubwabo (2022), the development of women's skills is a crucial driving force for economic growth and social progress in a country and is necessary to turn a country's vision of comprehensive development into a reality. Specifically, in the Quetta district, the vocational skill programmes for women empowerment have enhanced the abilities of women in every walk of life. There is still more to be done in the area of girls' and women's vocational education in the respective trade and sector (Ahmed, et al., 2022).

Recent research by Hojeij et al. (2023) highlights a persisting under-representation of females in the field of TVET. The study underscores the belief among women that vocational education prepares them for a more promising future, whether in terms of career prospects or furthering their education. A well-defined TVET sector embodies coordinated, coherent and organised TVET authorities working under a proper hierarchy, accountable for the execution of their plans (Imran & Mohyuddin, 2017). The Ministry of Labour and Employment has formulated national-level skills programmes to orient the workforce and ensure Pakistanis' competitiveness in the global market (Ahmed et al., 2022). In the past few years, the focus has been on improving women's access to TVET, resulting in an increase in enrollment of women in fields like engineering, which were previously dominated by men (Matenda, 2020).

To improve the current inadequate system of providing skills training by NAVTTC, more effective and dynamic programmes that include both theoretical and practical components should be implemented to enhance the skill set of female trainees in various TVET fields (Ahmed et al., 2020). The emphasis of TVET should extend beyond addressing unemployment in formal sectors and encompass the development of highly skilled workers as well as the provision of reskilling opportunities (Naziz et al., 2019)

Skilled Women's Self-Employability/Entrepreneur Startup

Women are becoming digital women, and they are achieving incredible things in their own right, not just managing family and work but also contributing to the country's economic progress. Participating in entrepreneurship education improves the likelihood that students will want to start their firms, which eventually helps the nation develop by giving the younger generation access to the economy by developing their skills (Alvi & Tarar, 2021).

Despite facing obstacles, such as family obligations and financial challenges, women have successfully defied societal norms and established their own identities (Manshani & Dubey, 2017). Women's entrepreneurship has emerged as a significant area of study (Terjesen et al., 2016). The findings of this study will be valuable in formulating policies that encourage the establishment of women-owned SMEs by identifying the challenges experienced by women entrepreneurs and identifying effective solutions according to the country's level of development (Welsh et al., 2016). Macdonald et al. (2021) conducted a study on the importance of women studying and learning entrepreneurship, which revealed that entrepreneurship fosters personal development. Women from various social and economic backgrounds benefit from studying entrepreneurship as it enables them to develop unique skills and critical thinking abilities.

Empowerment through Skill Development: Gender Perspective

Empowerment through skill development represents a vital intersection of social and economic progress, particularly from a gender standpoint. Access to TVET institutes is pivotal in enhancing gender equality and women's socioeconomic autonomy (Kabeer, 2005). Skill acquisition empowers women to access diverse economic opportunities, transcending traditional gender roles. In Quetta, Balochistan, women's involvement in TVET programmes offers a platform to challenge entrenched gender norms and promote financial independence. However, obstacles remain, including social norms restricting women's participation and mobility in certain industries. Addressing these challenges necessitates holistic approaches that recognise the interplay between gender, skills, and social dynamics.

Success Factors of TVET Programmes Enhancing Women Self Employability

TVET-qualified women in Balochistan have demonstrated their significant contributions to income earnings by enhancing their general educational level. They actively participate in supporting household expenses, caring for their families and siblings, and utilising various socioeconomic and demographic channels to integrate into

Balochistan's economic and social structure (Ahmed et al., 2022).

To develop a good public image, TVET must be revamped through public-private partnerships for skill development, massively invested in, and consistently dedicated to the purpose of TVE (Oviawe, 2018). By nurturing the acquisition of relevant knowledge and skills as well as promoting training in essential real-world competencies, such as critical thinking, problem-solving, communication, and lifelong learning, TVET endeavours to produce graduates who are well-prepared for the demands of the workforce (Jabarullah & Hussain, 2019).

Factors Enabling Successful Skill Acquisition and Entrepreneurship

The acquisition of skills and entrepreneurship are intertwined dimensions of human development, bearing substantial influence on economic growth and individual empowerment. Within the context of TVET programmes, certain factors emerge as critical enablers for successful skill acquisition and subsequent entrepreneurial endeavours. Scholarly discourse underscores the significance of tailored and market-relevant training programmes that equip individuals with skills directly aligned with industry demands. Such programmes, when informed by industry input and integrated with experiential learning, offer learners the practical competencies needed for entrepreneurship. Additionally, building self-efficacy and confidence through training programmes enhances the entrepreneurial mindset, which is crucial for venturing into new businesses.

Nevertheless, challenges persist, including gender disparities, limited access to finance, and socio-cultural biases that hinder women's participation in entrepreneurial activities Balancing the dichotomy of skill acquisition for both wage employment and entrepreneurship, especially in rapidly changing industries, presents another complex facet. By identifying these factors, policymakers and educators can develop comprehensive strategies that equip individuals with the competencies and mindset required for successful self-employment ventures.

Challenges and Barriers Faced by Skilled Women

Navigating the landscape of TVET programmes in Balochistan reveals a complex web of challenges and barriers that skilled women encounter in their pursuit of education and empowerment. Scholarly discourse underscores the importance of recognising and addressing these obstacles to ensure inclusive access and participation. Research highlights socio-cultural norms and traditional gender roles as prominent barriers, constraining women's mobility and autonomy in pursuing education and training. These norms perpetuate stereotypes that discourage women from enrolling in non-traditional fields, limiting their vocational options.

By comprehending these complexities, stakeholders can develop strategies that break down barriers, foster a gender-inclusive learning environment, and empower women to access the benefits of TVET education.

The Role of Economic Disparities

Economic disparities significantly contribute to the hindrance of women's participation in TVET programmes. The financial burden associated with education, compounded by restricted access to credit and funding opportunities, creates substantial obstacles to women's engagement in pursuing TVET programmes. Furthermore, the intricate challenge of balancing domestic responsibilities alongside training commitments poses a particularly persistent hurdle, especially in patriarchal societies.

Socio-Cultural and Societal Challenges Impacting Skill Development

Societal perceptions that prioritise domestic responsibilities over skill acquisition further hinder women's participation in TVET programmes. Moreover, the lack of supportive family dynamics and community backing can impede women's pursuit of education and training. These challenges intersect with broader societal dynamics.

Economic disparities prevalent in societies with unequal resource distribution limit women's access to quality education and training. Integrating gender-responsive strategies within TVET curricula is also a promising avenue for change.

The Gap in the Literature and Explanatory Statement of the Assumption

Abundant natural and human resources grace Pakistan, yet in its ongoing growth phase, the significance of highly skilled human capital for national prosperity looms large. Pakistan's gender divide is worsening. The TVET entity's inception aimed to cultivate an adept workforce across industries. CPEC, within the Belt and Road Initiative (BRI), seeks to expedite trade and nurture bilateral economic growth. Thus, the current study sheds light on TVET in Pakistan. This study identifies TVET's deficiency in creating skilled labour, particularly female labour. TVET's deficiency is attributed to obsolete infrastructure, weak industry ties, and limited competencies. Addressing this, we investigate TVET's impact on Quetta's women entrepreneurs, bridging knowledge gaps on success factors, challenges, and perceptions. Growing women's labour-force involvement confronts institutional and societal barriers (Talento et al., 2022). Professionalising women through TVET enhances economic participation (Yadav et al., 2022). TVET programmes empower women, augmenting self-employment opportunities through skill empowerment.

3. THEORETICAL FRAMEWORK

Human Capital Theory

This study aims to assess the effectiveness of national investment in TVET in promoting individual social inclusion. By implementing a range of alternative training programmes within the TVET framework and enhancing stakeholder engagement in identifying market-driven and competency-based training initiatives, increased investment in TVET enables governments to diversify their human resource development investments while ensuring the quality of TVET programmes. Policymakers can justify their support for individuals' participation in education based on the human capital theory, which provides an economic rationale (Gale & Molla, 2015). According to the human capital hypothesis (Gebel & Heineck, 2019), individuals who improve their skills, knowledge, and attitudes are more likely to acquire and retain relevant occupations. Following the human capital principle, vocational education and training increase learners' human capital, empowering them to actively shape the workplace and society (Bohne et al., 2017).

The human capital theory posits that investments in education and skills yield heightened economic productivity. Thus, in the context of Balochistan, the strategic emphasis on enhancing skilled women's self-employability through TVET programmes is based on this theoretical framework. The facilitation of women's acquisition of pragmatic proficiencies engenders not only entrepreneurial impetus but also augments economic expansion, concurrently dismantling entrenched gender constraints.

Theory of Entrepreneurial Bricolage

This paper contributes to the emerging paradigm of entrepreneurial bricolage by highlighting the successful self-employment of women. The insights gained from these findings have the potential to benefit other fields of study, such as entrepreneurship and project management. Lessons learned from the creative industries, where individuals often confront dynamic and uncertain environments, can provide valuable knowledge and strategies for these disciplines (Senyard et al., 2015).

There is evidence to suggest that bricolage can be particularly effective for women entrepreneurs, who often face

unique challenges when it comes to accessing resources and capital. Skilled women's self-employability can be supported through the use of bricolage as a problem-solving approach, particularly when resources are limited and time is short. To use bricolage successfully, women entrepreneurs must have an intimate knowledge of their available resources and be observant, creative, and open to new ideas (Weick & Sutcliffe, 2001). For starters, business bricolage can boost the originality of opportunity generation. The distinctiveness and ability to satisfy a market demand are what give an opportunity its worth. New enterprises can offer unique products or services to current markets or even establish new markets by combining resources in novel and inventive ways. This enables businesses to identify and generate possibilities before their competitors, providing them with a competitive advantage.

4. RESEARCH METHODOLOGY

The data for this study was collected from five TVET institutions in Quetta, Balochistan. A mixed methods research approach was adopted to examine the skilled women's self-employability and the impact of TVET programmes in Balochistan. This research design allowed for a more comprehensive and robust exploration of the research problem and questions. The data collection process was conducted concurrently. Initially, public and private TVET institutions were purposefully selected from the BTEVTA institutional ranking, which categorised them into diploma and certification courses. The selected institutions for this study encompassed the Government Girls Polytechnic Institute, Saryab Road (GGPI) in Quetta, the Women Technical Training Centre in Quetta, the Government Vocational Institute Quetta, the Social Welfare Institute Nawa Killi, and the Women Technical Center Jinnah Town, Quetta. To ensure a representative sample, a systematic random sampling method (Hibberts et al., 2012) was employed. This method aimed to provide an equal chance of selection for both currently enrolled and graduated TVET students, irrespective of whether they pursued a diploma or certification. The study encompassed various skill programmes, including the TVET Regular Course, CBT Course, NAVTTC Session, UNHCR Session, and diplomas, ranging from a minimum six-month certification course to three diplomas. Individual visits were made to the respective institutions, and students were invited to participate, resulting in a total of 368 diploma and certificate holders being involved in this study.

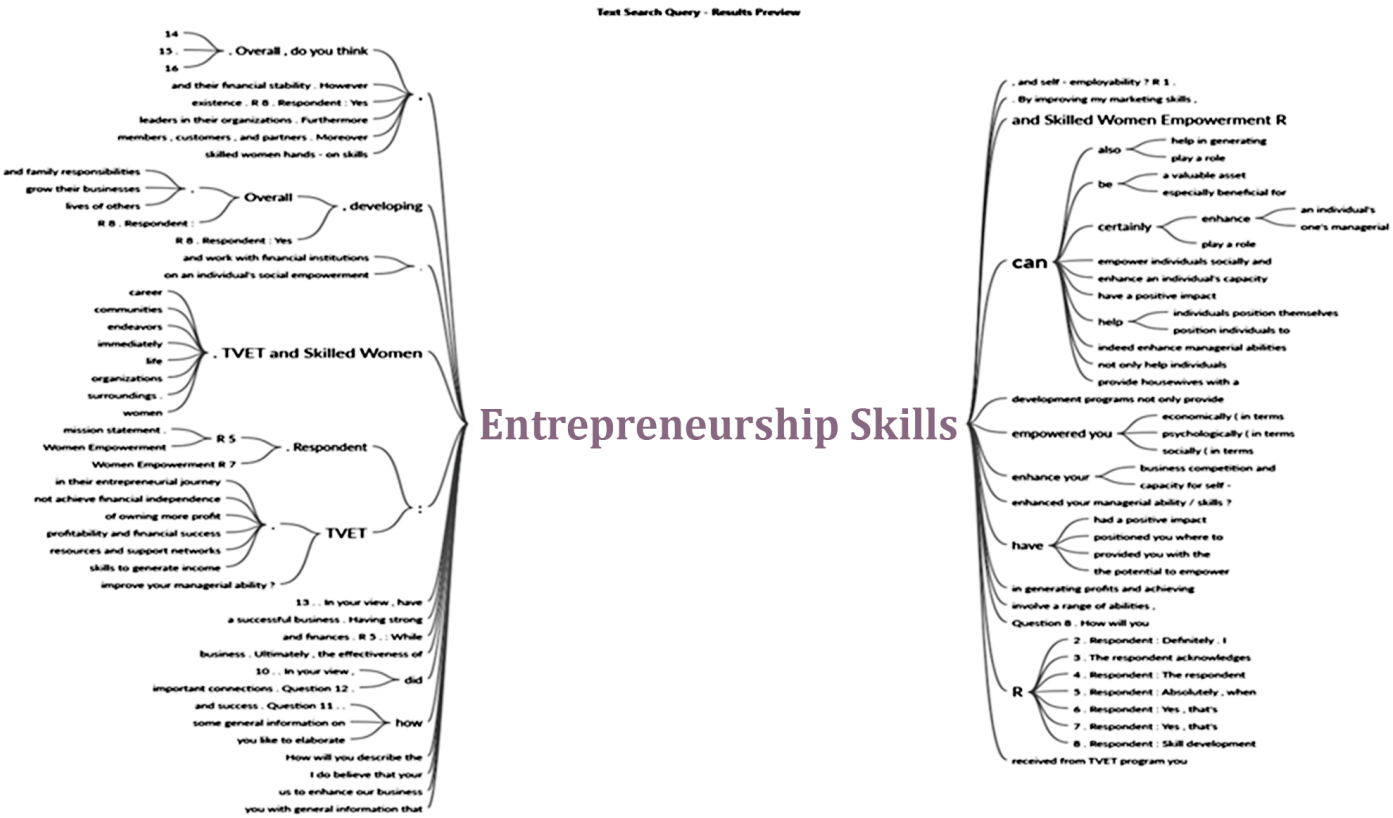
Research Design

Additional insights into the disparities in skills between diploma and certification courses were gathered through semi-structured interviews. Purposive sampling was used to select interviewees, including TVET female participants, TVET women entrepreneurs, and TVET experts. Notable individuals such as the Director of SMEDA, the Director of NIC, BUITEMs, the Director of NAVTTC, and the Principals of TVET institutes were among those selected for participation in this study and its interviews. The qualitative data obtained through these interviews complemented the quantitative data by providing a deeper understanding and addressing the research questions, capturing the intricacies of skilled women's self-employability and the role of TVET in job creation. The interview process concluded when the researchers reached data saturation, indicating that further interviews no longer contributed significantly to the study. A total of 27 semi-structured interviews were conducted across three tiers, involving TVET female graduates, TVET skilled women entrepreneurs, and experts.

Conceptual Model for the Study

Model 1 represents a word tree map that visually delineates the thematic framework employed in the study. It serves as a conceptual model, elucidating the intricate dimensions under investigation. Specifically, the model elucidates the twin dimensions encompassing the role of TVET institutes in fostering women's hands-on skills in Quetta, Balochistan, while concurrently spotlighting the challenges and barriers encountered by skilled women in their pursuit of accessing and actively participating in TVET programmes within the region of Balochistan.

Figure 1. Empirical Model of the Study



Source: Authors' compilations.

The empirical model is based on findings and gives a rigorous understanding of this study. The model shows how enrolled and pass-out women perceive TVET institutes' role in promoting their self-employment skills in Quetta, Balochistan. It also highlights the factors that contribute to the success of TVET programmes in enhancing the self-employability of skilled women in Balochistan. It illustrates the relationship between skilled women's self-employability and TVET programmes in Balochistan. Data was collected from TVET graduates.

Quantitative Data Collection and Procedures

Quantitative data for the RASTA project were collected through the distribution of self-administered questionnaires to a total of 420 enrolled and graduated TVET students. Out of the 420 questionnaires, 381 were received and after a careful evaluation, 368 were deemed complete and suitable for analysis. Descriptive statistics, such as frequencies and percentages, were computed to summarise the quantitative variables. Both qualitative and quantitative data sources were utilised in this research to provide comprehensive insights. The research questions were addressed through a descriptive analysis of the collected data.

Table 1 presents an overview of the demographic characteristics of the respondents, including their gender, marital status, age, qualifications, experiences, types of skills, and programme. It is essential to highlight that the data collection exclusively focused on female participants due to the focus of the study on TVET programmes for women's development. Among the female respondents, 47.3 per cent were below the age of 25, 24.5 per cent were aged between 25 and 35, 10.3 per cent fell within the age range of 36 to 45, and 13 per cent were between 46 and 55 years old. Only 4.9 per cent of the respondents were above the age of 55. Regarding educational qualifications, 16.8 per cent of the respondents held a matric degree, 32.9 per cent had completed Intermediate education, 18.8 per cent possessed a bachelor's degree, and 31.5 per cent had achieved a master's level qualification. In terms of work experience, 51.5 per cent of the female respondents had less than 5 years of

experience, 27.2 per cent had between 6 to 10 years of experience, and 9.8 per cent had 11 to 15 years of experience.

The majority of women participants were single (64.9%). In terms of employment, 53.3 per cent of the respondents were employed in the private sector, 23.6 per cent in the public sector, and 23.1 per cent were working in the semi-government sector. Examining the types of skills possessed by the women surveyed, the most prevalent skill reported was dress-making skills, accounting for 27.2 per cent of the respondents.

Table 1: Respondents' Profile

Category	No. of Respondents	Percentage
Gender		
Female	368	100%
Age (Years)		
Less than 25	174	47.3%
25-35	90	24.5%
36-45	38	10.3%
46-55	48	13%
Above 55	18	4.9%
Qualification		
Matric	62	16.8%
Intermediate	121	32.9%
Bachelor's	69	18.8%
Master's	116	31.5%
Experience in years		
Below 5	188	51.1%
6-10	100	27.2%
11-15	36	9.8%
16-20	33	9%
Over 20	11	3%
Marital Status		
Single	239	64.9%
Married	102	27.7%
Divorced	22	6%
Widow	5	1.4%
Sector		
Public Sector	87	23.6%
Private Sector	196	53.3%
Semi-Government	85	23.1%
Types of Skills		
Computer Application	81	22%

Office Management	60	16.3%
Dressmaking	100	27.2%
Beautician	82	22.3%
Cooking	45	12.2%
Types of Programme		
TVET Regular Course	71	19.3%
CBT Course	93	25.3%
NAVTTC Session	98	26.6%
UNHCR Session	45	12.2%
Diploma	61	16.6%

Table 2 indicates that the mean values for the variables vary from 0.000 to 3.82, and the standard deviation varies from 0.000 to 1.33 for the variables.

Table 2: Demographic Profile of Participants

	Minimum	Maximum	Mean	Standard Deviation
Age	1.00	5.00	2.0380	1.24128
Gender	.00	.00	.0000	.00000
Experience in years	1.00	5.00	1.8560	1.10408
Qualification	1.00	4.00	2.6495	1.09467
Marital Status	1.00	4.00	1.4375	.66963
Sector	1.00	3.00	1.9946	.68457
Types of Skills	1.00	5.00	2.8641	1.31974
Types of Programmes	1.00	5.00	2.8152	1.33434
HS	1.86	5.00	3.7077	.60619
ES	2.43	5.00	3.7451	.50339
EG	2.00	5.00	3.8216	.57619

Qualitative Data Collection and Procedures

To gain a comprehensive understanding of the phenomenon being examined, in-depth interviews were conducted with participants of the TVET programme. These interviews served as a platform for in-depth exploration and discussion.

The interviews were conducted face-to-face and scheduled at the convenience of the participants to ensure the collection of relevant data (Mitchell & Rich, 2020). A list of questions was prepared beforehand to guide the interviews, although not all questions were addressed in each interview to allow for flexibility. Each interview had an average duration of 40 minutes, ranging from 30 to 45 minutes.

Sample interview included questions such as:

In your perspective, how have practical skills improved your access to employment opportunities? In what ways have they enhanced your capacity for self-employment? If yes, please provide a detailed explanation.

How would you describe the entrepreneurship skills you acquired from the TVET programme you attended? Did these skills enable you to identify business ideas and perceive them as potential opportunities?

Before data collection, informed consent from the participants by employing a suitable consent form was obtained. To ensure the validity and reliability of the measurement instruments, a pilot study was carried out, employing Cronbach's alpha analysis. This pilot study involved 20 graduates from the TVET programme who completed the questionnaire and provided feedback on its content and structure.

Qualitative Data Analysis

For qualitative data analysis, an inductive approach was employed, applying a thematic analytical framework to examine the data in alignment with the research objectives. Thematic analysis was performed to identify and extract key themes from the data obtained through the semi-structured interviews, thereby providing deeper insights that complemented the survey responses. The ethical considerations outlined in the manual of the American Psychological Association (APA) were strictly adhered to throughout the research process. Focus group discussions were conducted with enrolled students studying at selected TVET institutes in Quetta. This method was specifically chosen due to its suitability for business studies, as it enables a more focused exploration of specific topics. The moderator of the focus group sessions introduced the discussion and provided a clear explanation of the purpose of the questions. Before the commencement of each focus group, the presence of audio recording equipment was acknowledged, and participants were reassured about the confidentiality of their responses. They were also given the option to withdraw from the discussion if they felt uncomfortable with being recorded.

For the qualitative part of the study, thematic analysis was employed for efficient and systematic data processing and analysis. After conducting the interview, the text was transcribed from Urdu to English. To become familiar with the main pattern meaning and contradiction, interview transcripts were reviewed and re-read.

Table 3 shows the demographic characteristics and educational profiles of enrolled and graduated students who were administered semi-structured interviews. The table presents coded names, genders, specific technical or vocational trades pursued, duration of the programmes, and institutions attended by each student. The table also shows the enrolled and graduated women participants in the TVET sector opted for a diverse range of skills, such as dressmaking, computer application, fine arts, beautician, cooking, and office management. The analysis provides valuable insights into the distribution and representation of participants across different TVET programmes and institutions. It significantly contributes to enhancing our understanding of the TVET landscape and its impact on women's skill development and empowerment. These findings help shed light on the effectiveness of TVET initiatives and provide a basis for further discussions and interventions aimed at promoting gender equality and women's empowerment in the context of skill development.

Table 3: Demographic Profile of Enrolled and Graduated Women

S/o	Coded Name	Gender	Technical/ Vocational	Trades	Duration	Institution
1	Student 1	F	Technical	Dressmaking	3 Years	GGPI (Saryab Road)
2	Student 2	F	Technical	Computer Application	3 Years	GGPI (Saryab Road)
3	Student 3	F	Vocational	Dressmaking	6 Months	BWBA(NGO)
4	Student 4	F	Vocational	Beautician	6 Months	GVI (Sirki Road)

5	Student 5	F	Vocational	Cooking	6 Months	AWTTC(Samungli)
6	Student 6	F	Technical	Fine Arts	3 Years	GGPI (Saryab Road)
7	Student 7	F	Vocational	Beautician	6 Months	SWTC (Nawa Killi)
8	Student 8	F	Vocational	Dressmaking	6 Months	GVI (Sirki Road)
9	Student 9	F	Technical	Office Management	3 Years	GGPI (Saryab Road)

Table 4 shows the demographic characteristics of skilled women entrepreneurs who were administered semi-structured interviews. The table presents coded names, gender, qualifications, years of experience, and designations of the participants. Table 4 also presents the diverse group of entrepreneurs, educational backgrounds, and extensive professional experiences including both male and female participants. The demographic statistic provides valuable insights into the diverse profiles and expertise of skilled women entrepreneurs and shows their educational achievements, extensive experience, and leadership roles within the entrepreneurial ecosystem.

Table 4: Demographic Profile of Skilled Entrepreneurs

S. N	Coded Name	Start-Up Name	Qualification	Experience	Designation
1	Women Entrepreneur 1	The Riders Pvt. Ltd	TVET Graduate	More than 6 years	Founder & CEO
2	Women Entrepreneur 2	AL-Buraaq Enterprises	BS Entrepreneur	More than 5 years	Founder & CEO
3	Women Entrepreneur 3	Plates of Flavor	TVET Graduate	More than 8 years	Founder & CEO
4	Women Entrepreneur 4	Uraan Consultancy Services	M.BA	More than 5 years	Founder & CEO
5	Women Entrepreneur 5	Iffat Training Center	TVET Graduate	More than 8 years	Founder & CEO
6	Women Entrepreneur 6	She Bakes	TVET Graduate	More than 10 years	Founder & CEO
7	Women Entrepreneur 7	Raqs-e-Rang Studio	BS Fashion Design	More 5 years	Founder & CEO
8	Women Entrepreneur 8	Diamanté By Sœurs	Business Graduate	More than 9 years	Founder & CEO

Table 5 shows the demographic characteristics of the experts who were interviewed. The table presents coded names, gender, qualifications, years of experience, and designations of the participants. Table 5 displays the profile of interviewees, which includes information on their diverse group of experts, educational backgrounds, and extensive professional experiences including both male and female participants. The demographic statistic provides valuable insights into the diverse profiles and expertise of experts and shows their educational achievements, extensive experience, and leadership roles within the entrepreneurial ecosystem. A total of 10 male and female experts participated in interviews.

Table 5: Demographic Information of Experts

S. N	Coded Name	Gender	Qualification	Experience	Designation
1	Shakoor Ahmed	Male	MBA (UK)	More than 15 years	Director SMEDA
2	Moh Shah	Male	MS Business	More than 8 years	Director NIC (BUITEMS)
3	Gulam Raza	Male	TVET Graduate	More than 17 years	Director NAVTEC
4	Shohaib Sherazi	Male	MBA	More than 15 years	Principal GVI & Expert (GIZ)
5	Ghazal Nagi	Female	MBA	More than 5 years	Master Trainer (GIZ)
6	Arifa Ali	Female	Graduate	More than 15 years	Principal GGPI (Saryab)
7	Zareena	Female	Graduate	More 12 years	Principal GVI (Sirki Road)
8	Faisal	Male	M.BA	More than10 years	Expert (GIZ)
9.	Zaheer	Male	Business Graduate	More than 10 years	Trainer GVI (Sirki Road)
10	Deedar Aman	Female	Graduate	More than 15 years	DOCH (Pvt) Ltd Founder & CEO

Table 6 shows the demographic profile of the enrolled and graduated females with whom the focus group discussions were held. Table 6 displays the profile of interviewees, which includes information on their coded names, gender, qualifications, years of experience, and designations. The table also presents the diverse group of skill programme categories, specific trades pursued, duration of the programme, and the institution attended. The demographic statistic provides valuable insights into the diverse range of participants engaged in various skill programmes, such as beautician, dressmaking, computer application, and cooking, with programme durations ranging from 6 months to 1 year. A total number of 8 females participated in the focus group discussion.

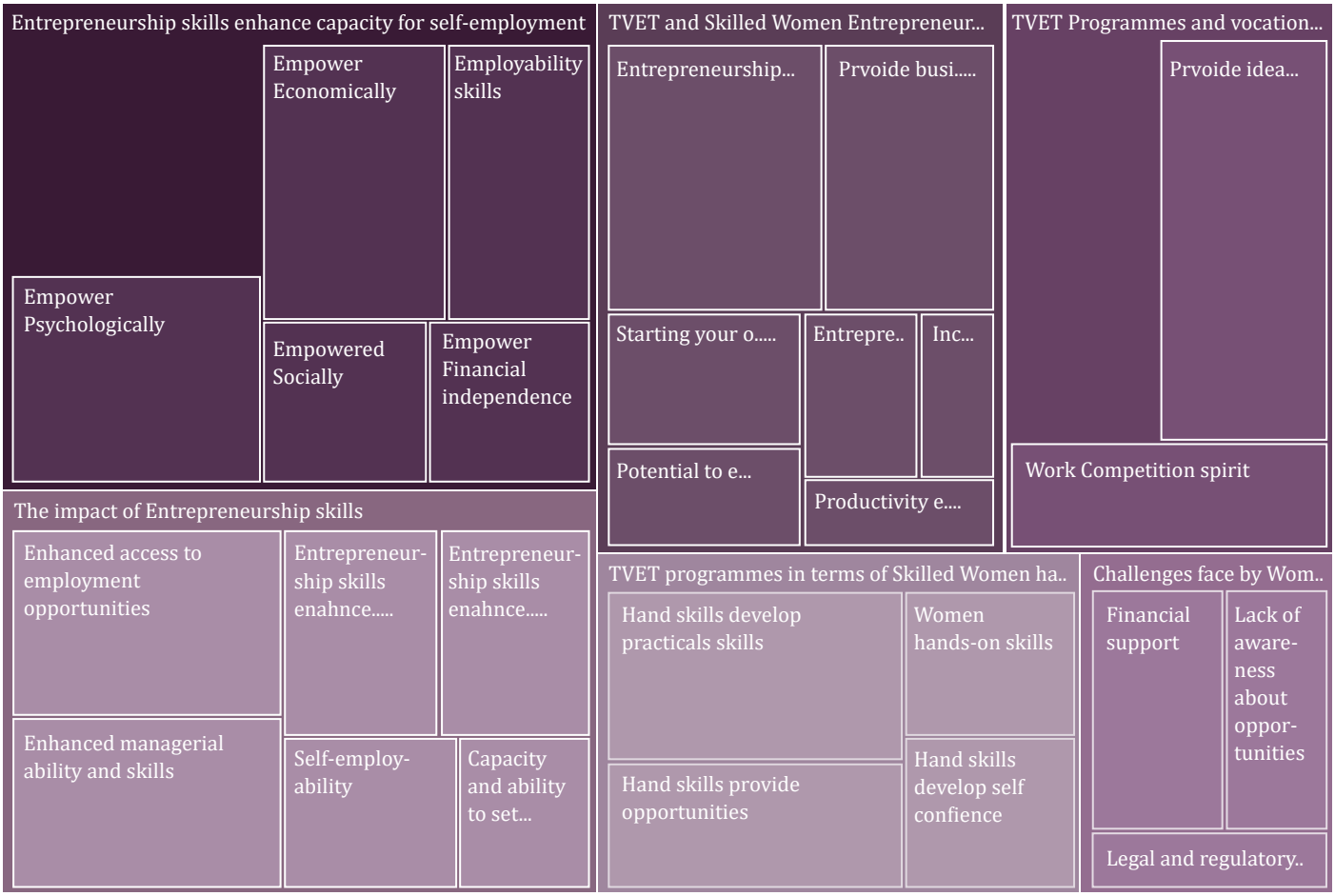
Table 6: Demographic Profile of Enrolled and Graduated Students from Focus Group Discussions

S/o	Coded Name	Gender	Skill Programme	Trades	Duration	Institution
1	Student 1	Female	Regular course	Beautician	6 Months	GVI (Sirki Road)
2	Student 2	Female	Navtic session	Dressmaking	6 Months	GVI (Sirki Road)
3	Student 3	Female	Regular course	Computer Application	6 Years	GVI (Sirki Road)
4	Student 4	Female	CBT Course	Dressmaking	6 Months	GVI (Sirki Road)
5	Student 5	Female	Navtic session	Computer Application	6 Months	GVI (Sirki Road)
6	Student 6	Female	UNHCR Session	Dressmaking	6 Months	GVI (Sirki Road)
7	Student 7	Female	CBT Course	Cooking	6 Months	GVI (Sirki Road)
8	Student 8	Female	Regular course	Beautician	6 Months	GVI (Sirki Road)

5. RESULTS

The result includes the hierarchy chart of the findings of the study, word tree map and word tag cloud. Hierarchical charts represent the study findings. A hierarchy chart, in general, is a graph that presents data as a set of established rectangles that vary in size. For instance, the dimensions of rectangles display node data. Nodes grow in size as more data is stored within them. Similarly, less data results in nodes with lower sizes. Depending on their sizes, each node occupies space in the graph. This hierarchy chart fulfils all objectives of the study.

Figure 2. Hierarchy Chart for Findings of the Study



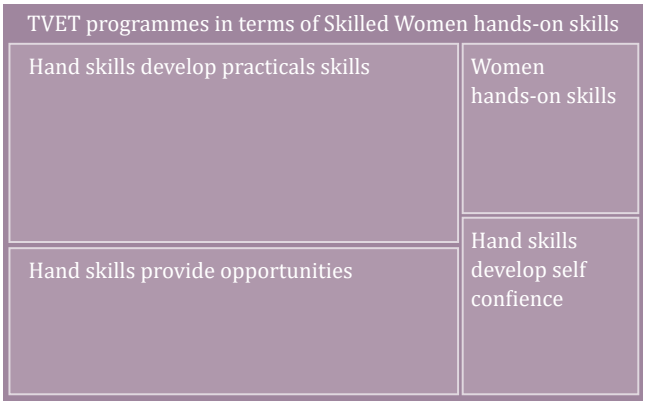
This hierarchical chart effectively fulfils all the objectives of the study, elucidating the determinants of skilled women's self-employability and the impact of TVET programmes in Balochistan.

Theme 1: TVET Skilled Women Hands-on Skills

Data from the interviews and field notes indicated that TVET helped women maintain their families, enhance their quality of life, and participate actively in decision-making. The study's findings revealed the pivotal role of TVET in cultivating women's hands-on skills, rendering them adept in technical domains. This proficiency not only augmented their employability but also underpinned their entrepreneurial pursuits, enabling them to engage in ventures aligned with their acquired expertise. Most interviewed participants perceived that women in Balochistan had developed hands-on skills. A lot of women produce goods that are significant both domestically and abroad. Women of Balochistan are incredibly talented in creating handmade goods, including carpet weaving,

painting, embroidery, and other handicrafts. These products are sold in both domestic and foreign markets, providing them with a strong source of money and showcasing their business abilities.

Figure 3. TVET's Role in Women's Hands-On Skills

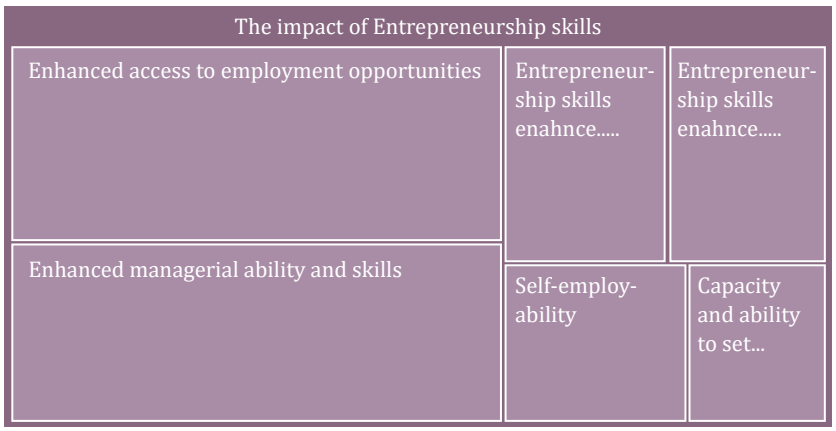


Theme 2: TVET Skilled Women Entrepreneurship Skills

Our findings suggest that the TVET programmes also provided invaluable advice on how to launch a business. They advised the participants on how to work on my business idea and make the best use of the resources the women have. Entrepreneurial skills needed to succeed in self-employment can undoubtedly be aided by entrepreneurship knowledge. Effective communication, decision-making, money management, marketing, and networking are a few examples of these abilities. The effectiveness of these skills in boosting self-employment capacity ultimately depends on the individual and the particular challenges they encounter during their entrepreneurial journey.

Most interviewed participants noted that general education, skill development, and social and cultural support all played important roles in women becoming entrepreneurs in many areas of their lives. It additionally strengthens and highlights the value of TVET skills in a variety of situations where skill acquisition has an impact on individuals' socioeconomic development. The growth of rural communities' incomes has been greatly influenced by this training. Most interviewed participants noted that general education, skill development, and social and cultural support all played important roles in women becoming entrepreneurs in many areas of their lives.

Figure 4: Entrepreneurship Skills Enhancement for Self-Employment



Theme 3: TVET: Entrepreneurship Skills and Skilled Women Empowerment

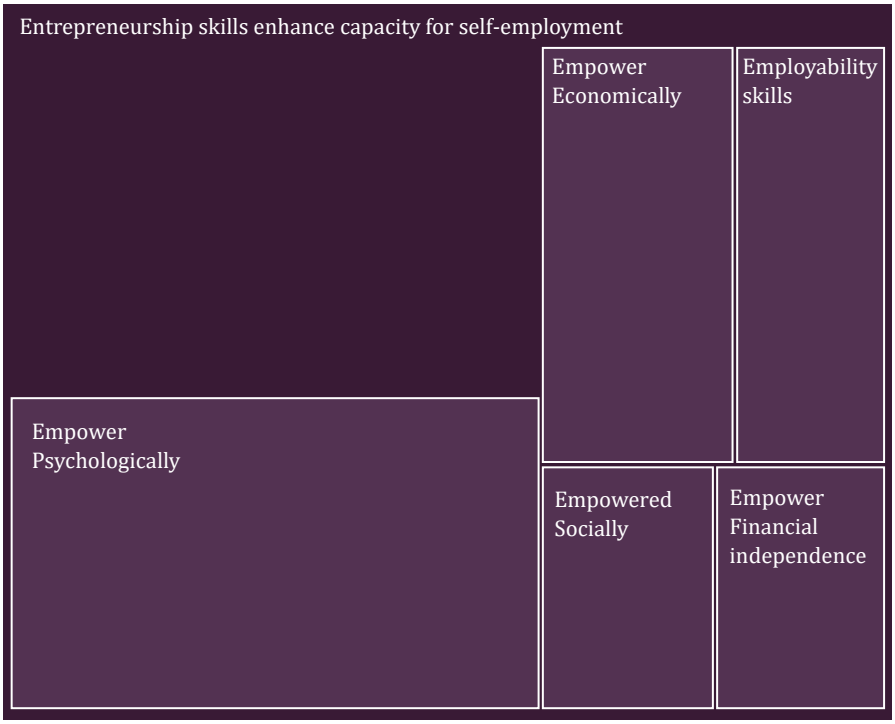
Our study's findings indicate that entrepreneurship skills can be especially beneficial for housewives looking to contribute to the economy and increase their earning potential.

The economic, psychological, and social empowerment of skilled women emerges as a pivotal outcome. This empowerment emanates from their augmented participation in entrepreneurial activities, resonating across familial and societal spheres. It is notably discerned that skilled women are instrumental in poverty alleviation, engendering economic upliftment in their communities. Additionally, their influence extends to positively shaping the health and educational trajectories of their children, thereby fostering holistic social advancement. Moreover, the research accentuates the intrinsic link between TVET and the empowerment of women, which reverberates throughout economic, psychological, and social dimensions. It catalyses the dismantling of traditional gender roles, affording women enhanced agency in economic activities and augmenting their contributions to the wider societal fabric. This empowerment, in turn, fuels the propagation of gender equality principles by challenging normative paradigms.

Most interviewed participants perceived that in the majority of the economies of the world, the entrepreneurial development of skills, such as TVET, was crucial to the construction of human capital and the development of human resources. TVET is crucial for a society's economic and social growth. One of the interviewees explained the role of TVET in entrepreneurial skill development in the following words: "TVET programmes are essential for developing skills that lead to employment, self-employment, and entrepreneurship" (Interviewed Respondent 00).

The respondent gave a thorough explanation of TVET as a framework for education and training that includes all learning levels and styles. They clarified that TVET strives to provide people with the information and skills required for numerous vocations in many economic and social sectors. These learning techniques can be official, non-formal, or informal, and they can be used in both work and educational settings.

Figure 6: Role of TVET in Women Empowerment



Theme 4: Challenges in the Pursuit of Success: Barriers Faced by Skilled Women in Balochistan

Despite the transformative potential of TVET, a spectrum of challenges face women entrepreneurs. Moreover, constrained financial support further exacerbates their predicament, restraining their ability to actualise entrepreneurial ventures. These challenges are compounded by a lack of family support, lack of self-confidence, and diminished communicative competencies, which collectively engender a milieu of barriers.

Furthermore, a scarcity of women-owned small and medium enterprises (SMEs) is noted, indicative of prevailing disparities. The integration of entrepreneurship education within formal education systems is found to be inadequate, inhibiting the cultivation of an entrepreneurial mindset from early education. An underlying theme underscored is the imperative of achieving work-family balance. The study highlights the role of empowered women entrepreneurs as catalysts for transformative societal change. The attainment of equilibrium resonates beyond personal spheres, contributing to the amelioration of gender disparities and the cultivation of progressive social paradigms.

Most interviewees reported that they experienced financial difficulties, while some also experienced a lack of prospects and just a small number experienced issues with legal and regulatory administration. A financial crisis can indeed make it difficult to launch a firm. In such circumstances, having access to grants and loans can be beneficial.

Women can increase their sense of empowerment and self-worth by learning entrepreneurial skills. Financially independent women can also be role models for their children and help eliminate the gender biases that are deeply embedded in our society. As a result of their expertise in managing their businesses, skilled women are frequently very social and have strong communication abilities. Successful commercial endeavours can give women financial power and a sense of independence and autonomy.

Figure 7: Challenges Faced by TVET Skilled Women

The word tag cloud presents a visualisation of the study's most frequently used words, showcasing their repetition and highlighting thematic patterns. The tag cloud emphasises the most commonly used words by representing them in larger font sizes, while less frequently used words are displayed in smaller font sizes. This visual representation aids in understanding the prevalent themes within the study.

Figure 8: Word Tag Cloud Visualisation

6. RESULTS AND DISCUSSION

This project involved an analysis of the views of different scholars and their comparison with the views of the teachers on the issue of cluster system. Qualitative data were obtained from female TVET skilled women, entrepreneurs, and TVET experts through semi-structured on the following themes:

- TVET institutes' role in promoting women's hands-on skills.
- Success factors of TVET programmes in enhancing the self-employability of skilled women.
- Perceptions of enrolled and graduated women regarding TVET institutes' role.
- Challenges and barriers that skilled women face in accessing and participating in TVET as well as strategies used to cope with conflict between work and home.

A Glimpse of Female Students Pursuing TVET

The participants in this study were 368 female students studying at TVET institutions in Quetta. The data presented in Table 7 below notes the participants' perceptions regarding the contribution of hands-on skills to their capacity for self-employment. The analysis highlights a notable consensus among participants, with a significant majority (76.8%) acknowledging that hands-on skills had a positive influence in enhancing their potential for self-employment. This affirmative sentiment is distributed between "agree" (49.0%) and "strongly agree" (23.2%) responses. Conversely, a combined 5.8% of participants expressed disagreement, comprising 3.9 per cent who disagreed and 1.9 per cent who strongly disagreed. Moreover, 21.9 per cent of participants adopted a neutral stance, indicating a lack of alignment with the notion that hands-on skills directly fortify their self-employment prospects. In summary, a substantial number of participants recognised the pivotal role of

hands-on skills in bolstering their aptitude for self-employment, underscoring the perceived significance of practical skills as catalysts for fostering entrepreneurial endeavours.

Quantitative findings show that TVET institutes in Quetta have been able to develop entrepreneurship skills among women working in those institutes. A significant majority of women participants agreed that the entrepreneurial skills acquired through TVET institutes had enabled them to identify business ideas and evaluate them as potential opportunities. Furthermore, these entrepreneurial skills equipped them with the capacity and capability to establish business goals and objectives, and actively work towards their achievement. Moreover, those women also agreed that entrepreneurship skills enhanced their marketing skills. Additionally, entrepreneurial skills also enhanced their managerial skills to generate profit and become financially independent. Thus, TVET institutes have successfully developed and enhanced the entrepreneurial skills of women working in TVETs.

Table 7: Participants' Perception of Hands-On Skills

	Frequency	Per Cent	Valid Per Cent
Strongly disagree	23	6.25%	6.25%
Disagree	36	9.78%	9.78%
Neutral	64	17.39%	17.39%
Agree	176	47.82%	47.82%
Strongly agree	69	18.75%	18.75%
Total	368	100.00%	100.00%

Emerging Themes from the Analysis

Theme 1: TVET and Skilled Women Hands-on Skills

The ongoing advancement of TVET in Balochistan aligns with the evolving demands of the industry and the national vision. This study evaluated the role of TVET-trained women in fostering self-employability prospects within the youth demographic of Balochistan. Specifically, the investigation aimed to scrutinise the impact of hands-on skills acquired through Quetta's TVET schools on enhancing employment avenues among the region's youth. The findings underscore that the acquisition of hands-on skills from TVET institutions in Quetta significantly and positively contributes to the augmentation of employment opportunities among women in Balochistan.

The results indicate that TVET institutes in Quetta have significantly contributed to the improvement of women's hands-on skills, with a majority of women expressing positive views towards the role of TVET institutes. These findings are consistent with prior research outcomes that elucidate the pivotal role of hands-on skills acquired through TVET programmes in facilitating employment generation. The acquisition of hands-on skills from TVET institutions holds significant importance not only in the initiation of employment but also in optimising work performance, catalysing job advancement, and fortifying job stability Rukundo & Sikubwabo (2021). The empirical results related to the role of TVET institutes in promoting women's hands-on skills in Quetta, Balochistan, are presented in Appendices.

Theme 2: TVET and Skilled Women Entrepreneurship Skills

Our findings suggest that the TVET programmes also provided invaluable advice on how to launch a business.

One of the participants noted that "General education, skill development, and social and cultural support all play important roles in women becoming entrepreneurs in many areas of their lives." It additionally strengthens and highlights the value of TVET skills in a variety of situations where skill acquisition has an impact on individuals' socioeconomic development. These initiatives help women enhance their entrepreneurial talents and establish their startups.

The findings revealed that in Balochistan, TVET programmes are undergoing a dynamic evolution to ensure their alignment with the changing needs of industries and broader national aspirations, which is crucial for bridging the existing skills gap and effectively meeting the dynamic demands of the labour market. TVET institutions are determined to equip their participants with the relevant skills and knowledge required by industries through continuously updating and adapting their programmes. This optimistic approach not only boosts individuals' employability but also contributes to the overall economic development and growth of the region.

Empowerment of Women and the Promotion of Gender Equality

These findings align with prior research that accentuates the empowerment of women and the promotion of gender equality through practical skill development across diverse TVET domains. To facilitate the effective motivation and empowerment of women, fostering financial independence, self-reliance, and productivity, it is essential to start specialised TVET programmes that specifically cater to their academic and practical skill requirements. These findings are consistent with prior research, exemplified by the study conducted by Minani & Sikubwabo (2022), which examined the impact of TVET programmes on women's empowerment in Rwanda. TVET, for example, a hands-on and product-based form of training, plays a vital role in empowering individuals and equipping them with specific skills for the workforce.

Challenges Faced by Women Entrepreneurs

The analysis conducted in this study highlights the significant role of two key variables in understanding the motivations and challenges faced by women business owners:

Lack of Education and Managerial Skills: These factors have a profound impact on the experiences and outcomes of women entrepreneurs. The findings underscore that limited educational opportunities hinder women from acquiring the necessary knowledge and expertise to effectively manage their businesses. Additionally, the absence of managerial skills presents further obstacles, impeding their ability to navigate complex business environments and make informed decisions. Recognising the importance of addressing these gaps, it becomes crucial to design interventions that focus on enhancing educational opportunities and providing targeted training programmes to empower women entrepreneurs with the essential managerial skills required for business success.

The findings indicate that the acquisition of entrepreneurship skills is crucial in enabling women to recognise and evaluate business ideas as potential opportunities. The acquisition of entrepreneurial skills is applicable across various industries, allowing women to become competent candidates in their chosen fields. This claim is supported by Buang et al. (2020), who assert that women with technical and vocational training (TVET) qualifications have made noteworthy contributions to their income earnings while also improving their overall educational attainment.

Lack of Family Support: These findings underscore the significance of skill development in Balochistan, contributing to socio-economic and demographic progress in the region as a whole. According to a study, women entrepreneurs embark on their business ventures with or without the assistance of their family members, in terms of both organisation and financing. The study acknowledges the substantial contribution of women entrepreneurs to the economic prosperity of a nation.

The role of women in advancing the health and education of children is a pivotal subject of investigation. As women attain higher incomes, they gain enhanced agency over productive resources, affording them the capacity to channel investments not only into their health and education but also into those of their offspring. Additionally, the attainment of economic independence equips women with the means to extricate themselves from abusive relationships, as attested by scholarly work (Esplen & Brody, 2007; Murnieks et al., 2020; Uzoamaka et al., 2016).

Lack of Confidence and Exhibiting Reduced Communicative Abilities: The study findings further revealed that participants experienced personal growth and enhanced psychological well-being following their enrollment in a TVET programme. Before participating in the programme, respondents reported lacking confidence and exhibiting reduced communicative abilities. However, through the acquisition of vocational skills facilitated by TVET programmes, their self-esteem and communication skills improved significantly, empowering them to engage more effectively in various aspects of their lives.

Previous studies have demonstrated that women with higher self-esteem are more likeable, have better interpersonal relationships, and make more favourable impressions on others. They also exhibit stronger ingroup favouritism, display greater initiative, and experience more positive emotions compared to women with lower self-esteem. The current study findings have important implications, suggesting that policies and programmes should be designed to promote women's social and psychological well-being. Hence, stakeholders should cultivate a nurturing environment that bolsters their confidence and enhances their communicative skills.

Lack of women-owned SMEs: The research findings emphasised the importance of shaping policies to promote women-owned SMEs. Understanding and addressing the unique challenges faced by women entrepreneurs customised to a country's development level, are essential for supporting women's entrepreneurial endeavours (Welsh et al., 2016).

The study specifically concentrated on the establishment of SMEs by women entrepreneurs, within the context of a family-oriented framework. According to some respondents “obtaining financial help is a major issue in society. Those who are financially secure can launch their SMEs with ease, while many families struggle to make enough money to live comfortably. Due to the stringent restrictions, getting finance from banks and other financial organisations might be difficult for the typical person to fulfil. Skilled women may be forced to work for others rather than using their skills to launch their enterprises due to a lack of financial support” (respondents 1,4, and 8). Based on the research findings, it is imperative to implement policies and initiatives that actively bolster women-owned SMEs, facilitating both their establishment and growth.

Skilled Women’s Economic, Psychological, and Social Empowerment: Psychologically, economically, and socially, the attainment of financial independence bestows a profound sense of empowerment upon women. A substantial majority of the individuals interviewed underlined the transformative impact of these capabilities on women, catalysing not only psychological well-being but also economic empowerment. This empowerment, in turn, equips women with the capacity to render astute decisions and robustly engage in multifaceted dimensions of society and corporate domains. A few respondents claimed that “Since enrolling in a TVET programme, they have made a development in their psychological well-being. Before the programme, they lacked confidence and were less talkative” (entrepreneurs, 2, 4, and 9).

Apart from economic and sociological aspects, women's empowerment also encompasses psychological factors. In the context of successful women entrepreneurs in Quetta, several vital factors were identified, including a desire for independence and competitiveness, the aspiration for increased income, the drive to enhance the family's social status, the motivation to develop personal skills, and the influence of success stories from other women entrepreneurs (Darmanto & Yuliari, 2018). Previous research has also highlighted the significance of policy, personality traits, human resources, and the entrepreneurial climate in shaping the performance of women entrepreneurs.

Role of Skilled Women in Poverty Alleviation

One key contribution of our findings is the provision of evidence for a distinct perspective on entrepreneurship for poverty alleviation, which diverges from the prevailing discourse in mainstream entrepreneurship literature. In contrast to short-term approaches, we found that the women in our study adopted a long-term perspective when addressing poverty, aligning with the perspectives highlighted by (Murnieks et al., 2020). Existing research consistently indicates that women's income has far-reaching implications. Increased income enhances women's autonomy, providing them with the freedom to choose their lifestyle and fostering a sense of empowerment.

The study's findings and the developed framework make a significant contribution to the existing literature on women and ethnic entrepreneurship. However, the rest of the respondents (4 and 7) said that "Businesses founded by women can lead to job possibilities for others, thereby lowering poverty levels in the area. We feel more comfortable and bold as compared to other women in surrounding households. We can financially support our families and we can help other females to earn money and help them to get jobs or do their own business". TVET can have a transformative impact on women and lifelong learners, providing them with the skills they need to find employment and improve the sustainable prosperity of themselves, their employers, and their communities.

Achieving Work-Family Balance: Empowering Women Entrepreneurs as Catalysts for Change

Striking a balance between professional commitments and family responsibilities constitutes a notable challenge, yet it is an attainable goal with effective support systems and strategic planning. Moreover, women entrepreneurs play a pivotal role as inspirational figures for fellow women in their communities, especially those lacking formal education and skills. This research highlights the paramount significance of recognising and proactively addressing the unique hurdles encountered by women entrepreneurs, particularly in effectively managing their concurrent roles in the realms of work and family.

Likewise, in congruence with Zia et al. (2022), the concept of work-life balance has been conceived as the harmonious congruence of an individual's efficacy and contentment in both occupational and non-occupational spheres, while aligning with their values and priorities. Their entrepreneurial skills enable them to provide financial support to their family and assist other women in earning income by helping them find employment or start their businesses. The respondent's primary goal is to boost the confidence of these women, empowering them to engage with others, market their products, establish networks with fellow entrepreneurs, and attain economic independence. Consequently, these women will experience greater self-reliance, generate income, and actively participate in family matters, leading to overall empowerment and improved socio-economic outcomes. TVET experts assert that private sector enterprises, government-funded programmes, and collaborations with NGOs and other organisations can play a dynamic role in offering essential support. The findings primarily underscore the significance of the need for achievement as a key determinant in the career progression and success of women entrepreneurs.

At the practical level, the findings of the current study indicate that multiple factors impede women's entrepreneurship in the region. These encompass insufficient support from government programmes, the prevailing patriarchal social structure, inadequate collateral security for accessing funding, limited entrepreneurial knowledge for effective business management, lack of sufficient market information, the occurrence of local disasters, and time limitations or role conflicts that create challenges in balancing family responsibilities. According to the respondents, the lack of collateral security to acquire funds emerged as a significant obstacle in particular.

By proactively addressing these fundamental determinants, stakeholders can effectuate substantial advancements in the realm of women's entrepreneurship, thereby nurturing an ecosystem that is conducive to their sustainable growth and prosperity.

7. CONCLUSION

The present study attempted to construct a comprehensive framework aimed at providing support to women entrepreneurs within the TVET sector to enable them to sustain their enterprises in the face of prevailing economic conditions.

The empirical analysis yields a thorough understanding of the intricate interplay between TVET, skilled women, entrepreneurship, empowerment, and the corresponding challenges. Through the exploration of diverse themes, encompassing the influence of TVET on women's hands-on aptitude and entrepreneurship proficiencies, the pivotal role of empowerment, and the propagation of gender parity, alongside the impediments faced by women entrepreneurs, the research underscores the multidimensional dynamics of this evolving landscape.

The study accentuates the transformative potential embedded in TVET, as it equips skilled women with both technical proficiency and entrepreneurial prowess. This dual skill set not only amplifies their economic horizons but also contributes to their psychological and social empowerment. Importantly, it underscores the pivotal role that skilled women can play in fostering empowerment right from the heart of their homes, as they inspire and mentor future generations. This homegrown empowerment, rooted in knowledge and skills acquired through TVET programmes, becomes a powerful catalyst for societal change.

Furthermore, the study emphasises the pivotal role that skilled women play in mitigating poverty, coupled with their capacity to positively impact the health and educational trajectories of their dependents, thereby radiating a ripple effect of societal enhancement. This soft empowerment approach recognises that women, as pillars of their families and communities, hold the key to nurturing a culture of empowerment and resilience from within their homes.

In conclusion, our research underscores the importance of TVET as a transformative force in equipping skilled women with the tools to succeed not only as entrepreneurs but also as agents of empowerment within their households and communities.

8. RECOMMENDATION / POLICY IMPLICATIONS

These concise recommendations leverage research insights to tackle specific challenges faced by skilled women in Balochistan's TVET sector, fostering their empowerment and equitable participation in entrepreneurship. Based on the research findings within the context of Balochistan's TVET programmes and skilled women, the following evidence-based policy recommendations are proposed:

Tailored TVET Programmes:

- Policymakers should consider the development of tailored TVET programmes that specifically address the unique needs and challenges faced by women in Balochistan.
- These programmes should be designed to provide not only technical skills but also entrepreneurial and business management skills, empowering women to establish and manage their businesses effectively.

Accessible Training Centers:

- To facilitate women's participation in TVET programmes, policymakers should work towards establishing training centres that are easily accessible, especially in rural and remote areas.

- These centres should provide a safe and supportive learning environment to encourage women's enrollment.

Awareness Campaigns:

- Raising awareness about the benefits of TVET programmes and self-employment opportunities among women in Balochistan is vital.
- Policymakers can invest in awareness campaigns to dispel misconceptions and promote the advantages of acquiring vocational skills.

Comprehensive Entrepreneurship Education Integration:

- To equip women with entrepreneurial skills and develop a comprehensive framework integrating entrepreneurship education within TVET programmes. Modules should cover essential aspects such as business planning, financial management, marketing strategies, and innovation.
- Collaborate with industry experts to ensure the curriculum aligns with current market demands.

Shattering Glass Ceilings – Successful Women Entrepreneurs as Empowering Role Models:

- Successful women entrepreneurs can serve as a powerful inspiration for TVET-skilled women seeking self-employment opportunities. By sharing their stories and experiences, they empower TVET-skilled women to pursue entrepreneurship, fostering economic independence and gender equality in the workforce.

Family Support Initiatives:

- Collaborate with community leaders and stakeholders to raise awareness about the importance of family support for women entrepreneurs.
- Establish support networks that assist in managing work-family balance.

Balochistan-Centric Curriculum Development:

- Tailor the curriculum of TVET programmes in Balochistan to align with the province's distinct economic landscape. Integrate modules that emphasise industries and skills relevant to the region, such as agriculture, fisheries, and traditional crafts.
- Collaborate closely with local industry experts to ensure curriculum relevance.

Community-Engaged Skill Assessment:

- Implement skill assessment mechanisms that engage local communities and employers in Balochistan.
- Partner with regional businesses to assess the practical applicability of skills acquired through TVET programmes, ensuring that graduates are well-prepared for employment or entrepreneurship opportunities unique to the province.

Local Market Research:

- Conduct ongoing research to understand the evolving needs and opportunities within Balochistan's local markets. This research should inform TVET programme development, helping to align skill training with market demands specific to Balochistan.

Balochistan-Centric Financial Support Programmes:

- Design financial support initiatives that are specifically attuned to the circumstances of women entrepreneurs in Balochistan's TVET sector.
- Establish microloan programmes that acknowledge the unique economic challenges faced by women in the province.
- Collaborate with Balochistan's financial institutions to create specialised loan programmes that consider the distinct business environment, fostering entrepreneurship without traditional collateral constraints.

Partnerships with Local Stakeholders:

- Forge partnerships with local governmental bodies, non-governmental organisations, and community leaders in Balochistan to facilitate the implementation of TVET programmes. Collaborative efforts can address region-specific challenges and garner local support for skill development initiatives.

Regionally Tailored Gender-Responsive Mentorship Initiatives:

- Implement mentorship programmes that recognise the particular challenges and opportunities within Balochistan.
- Pair skilled women with mentors who possess a deep understanding of the local context, taking into account factors such as regional market dynamics, societal norms, and cultural sensitivities. Showcase successful entrepreneurs from Balochistan who can serve as relatable role models, guiding women through the intricacies of entrepreneurship within the province.

Local Capacity Building for Women Entrepreneurs:

- Develop and implement capacity-building workshops and training sessions that address the specific managerial and communication skills required by women entrepreneurs in Balochistan.
- Place a strong emphasis on enhancing self-confidence and effective communication within the province's unique social fabric. Forge partnerships with local private sector entities, governmental agencies, and civil society organisations to create a supportive ecosystem that takes into consideration the province's distinctive characteristics.

Balochistan-Centered Gender-Equality Promotion in TVET:

- Craft policies and guidelines that are tailored to Balochistan's specific needs to ensure equal access to TVET programmes for all genders.
- Launch awareness campaigns that challenge gender stereotypes and biases while considering the region's cultural diversity and social norms.

Community-Engaged Family Support Networks in Balochistan:

- Collaborate closely with community leaders and stakeholders to emphasise the importance of family support within Balochistan's cultural context.
- Establish support networks that provide practical assistance in navigating the work-family balance, considering the province's unique societal dynamics.

Local Success Stories as Empowering Role Models in Balochistan:

- Harness the potential of successful women entrepreneurs with a deep connection to Balochistan to serve as inspiring role models for TVET-skilled women within the province. Their stories and experiences can ignite a sense of empowerment and self-reliance, nurturing economic independence and gender equality in Balochistan's unique work environment.

Cultural Sensitivity and Nationalistic Pride in TVET:

- Develop a curriculum that not only respects Balochistan's cultural values but also instils a sense of nationalism and pride in skilled women.
- Promote gender equality in education while celebrating Balochistan's unique identity and contributions to the nation.

Support for Work-Family Balance Programmes:

- Recognise the critical importance of work-family balance for women entrepreneurs in Balochistan.
- Establish and support programmes that offer guidance, resources, and mentorship to women entrepreneurs in effectively managing their businesses and family responsibilities.
- Collaborate with local organisations, business associations, and women's support groups to create a network of support tailored to the unique needs of women entrepreneurs.

Balochistan's distinctiveness lies in its diverse economic sectors, including agriculture, fisheries, traditional crafts, and more. These sectors provide significant opportunities for skilled women to engage in self-employability and contribute to the local economy. Furthermore, the cultural richness and diversity of Balochistan play a crucial role in shaping the landscape of self-employability for women. Geographically, Balochistan's vast and varied terrain presents both challenges and opportunities.

These policy recommendations are thoughtfully tailored to the specific attributes of Balochistan, recognising the province's unique challenges and opportunities. The aim is to foster an environment characterised by empowerment, gender equality, and sustainable economic growth that aligns with Balochistan's distinctive characteristics.

Limitations of the study

Certain limitations of this study should be spelt out for the benefit of future research on the topic.

Firstly, the adoption of a non-probability convenience sampling technique introduces the possibility of sampling bias, constraining the generalisability of findings to the broader cohort of female TVET students and entrepreneurs. Additionally, the cross-sectional research design captures merely a snapshot of participants'

experiences and perceptions, curtailing the capacity to establish causality and monitor temporal changes. Self-report bias, inherent in the utilisation of self-administered survey questionnaires and qualitative interviews, raises concerns about response accuracy and objectivity. The findings, rooted in the Balochistan context, may exhibit limited transferability to distinct regions or cultural settings, thus curtailing external validity. While the study engaged 368 participants, this sample size might remain somewhat limited for drawing exhaustive conclusions, particularly when acknowledging the diverse experiential spectrum within the population. Last, the study area was limited to TVET-enrolled and graduated female students of Quetta. Other studies from different regions in the country will provide more details concerning female entrepreneurship in the Pakistan context.

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APPENDICES

Annexure 1: Survey Questionnaire

Dear Sir/Madam,

This questionnaire aims to collect information related to the Skilled Women's Self-employability and TVET Programmes in Balochistan: An Empirical Research. The information obtained will be strictly used for academic purposes only and will be treated as confidential.

This questionnaire is divided into two sections. Section A consists of questions related to general information of the respondent, section B consists of questions related to Skilled Women's Self-employability and TVET Programmes in Balochistan.

1. Individual responses to this questionnaire will be kept CONFIDENTIAL, and no individual answers will be identified.

2. If you are not sure of the answer to a question, please provide your best estimate. There is no right or wrong answer.

Section A: General information of the respondent (Demographic)

Name (Optional):

Age:

1) Less than 25
2) 25 – 35
3) 35– 45
4) 45 – 55
5) Above 55

Qualification:

1) Martic
2) Intermediate degree
3) Bachelor degree
4) Master degree
5) Other

Marital status

1) Single
2) Married
3) Divorced
4) Widow

Types of Programme

TVET Regular Course
CBT Course
NAVTIC Session
UNHCR Session
Diploma

Experience (years):

1) Below 5
2) 6 - 10
3) 11 – 15
4) 16-20
5) Over 20

Sector:

1) Public Sector
2) Private Sector
3) Semi-Government

Type of skills

1) Computer Application
2) Office Management
3) Dressmaking
4) Beautician
5) Cooking
6) Fine Arts

Section B: Questions

In this section, the respondent will answer the question related to the variable role of women's hands-on skills, the role of skilled women's entrepreneurship skills, and the role of skilled women in economic growth. Please mark the appropriate box according to your best choice; options are;

1. Strongly disagree 2. Disagree 3. Neutral 4. Agree 5. Strongly agree

S.No	ITEMS	1	2	3	4	5
Role of TVET Skilled Women Hands-on Skills						
1	Hands-on skills have improved my access to occupations traditionally dominated by men	1	2	3	4	5
2	Hands-on skills have developed my practical skills and competencies	1	2	3	4	5
3	Hands-on skills have developed my confidence and self-esteem	1	2	3	4	5
4	Hands-on skills have enhanced access to employment opportunities	1	2	3	4	5
5	Hands-on skills have enhanced my capacity for self-employment	1	2	3	4	5
6	Hands-on skills have increased my work competition spirit and employability skills	1	2	3	4	5
7	Hands-on skills have been a tool for productivity enhancement and socio-economic development. They have made me self-dependent.	1	2	3	4	5

Role of TVET Skilled Women Entrepreneurship Skills						
8	Entrepreneurship skills have made me able to find a business idea and assess it into a business opportunity	1	2	3	4	5
9	Entrepreneurship skills provided me with the capacity and ability to set business goals and objectives and work towards achieving them	1	2	3	4	5
10	Entrepreneurship skills have enhanced my business competition and marketing skills	1	2	3	4	5
11	Entrepreneurship skills have oriented me on where to get capital and how to work with financial institutions	1	2	3	4	5
12	Entrepreneurship has enhanced my capacity for self-employment	1	2	3	4	5
13	Entrepreneurship skills have enhanced my managerial ability/skills to generate profit and become financially independent	1	2	3	4	5
14	Entrepreneurship skills have helped me to escape the confinements, increase my socio-economic status and inspire self-reliance	1	2	3	4	5
Role of TVETs Skilled Women in Economic Growth						
15	Entrepreneurial skills have made me self-reliant and improved socio-economic development overall.	1	2	3	4	5
16	Entrepreneur skills have built my confidence from a growth mindset perspective to full confidence and expressing my competencies	1	2	3	4	5
17	Vocational training and financial assistance programmes have been effective in the formation of economic growth.	1	2	3	4	5
18	My self-confidence increased due to participation in entrepreneurship education.	1	2	3	4	5
19	The Entrepreneurship TVET programme Increased my attitude towards entrepreneurship.	1	2	3	4	5
20	Participation in entrepreneurship education increased my intentions towards entrepreneurship.	1	2	3	4	5

Annexure 2: Interview Protocol for Semi-Structure

Participant Age & Qualification: .....

Interview start time: .....

Interviewer: .....

Interview end time: .....

Date of Interview: .....

1. Introduction: Clarifying the purpose of the meeting

2. How do you describe the role of TVET programmes in terms of skilled women's hands-on skills, entrepreneurship skills, and self-employability?

TVET and Skilled Women Hands-on Skills

3. In your view, did hands-on skills develop your practical skills and competencies?

4. Did hands-on skills develop your confidence and self-esteem?

5. In your opinion, have hands-on skills enhanced access to employment opportunities? Did it enhance your capacity for self-employment? If yes, please explain.

6. Do you think, hands-on skills improved your access to occupations traditionally dominated by men in society? Did it increase your work competition spirit and employability skills?

7. In your observation, have hands-on skills been a tool for productivity enhancement and made you self-dependent?

8. In your view, overall, did hands-on skills increase your tendency/attitude towards entrepreneurship?

TVET and Skilled Women Entrepreneurship Skills

9. How will you describe the entrepreneurship skills received from the TVET programme you have attended? Did those skills make you able to find business ideas and consider them as opportunities?

10. Would you like to elaborate on how entrepreneurship skills have provided you with the capacity and ability to set business goals and objectives and work towards achieving them?

11. In your view, did entrepreneurship skills enhance your business competition and marketing skills?

12. How entrepreneurship skills have positioned you where to get capital and how to work with financial institutions?

13. Did entrepreneurship skills enhance your capacity for self-employment? If yes, please elaborate.

14. In your view, have entrepreneurship skills enhanced your managerial ability/skills? Did they help you to generate profit and become financially independent?

TVET: Entrepreneurship Skills and Skilled Women Empowerment

15. Overall, do you think, entrepreneurship skills empowered you economically (in terms of financial independence, self-reliance to generate income, access to and control over resources, your agency, voice, and relationship within the household) as compared to other females in your surroundings?

16. Overall, do you think, entrepreneurship skills empowered you socially (in terms of critical thinking, decision-making, action and equal participation, self-esteem, and self-confidence) as compared to other females in your surroundings?

17. Overall, do you think, entrepreneurship skills empowered you psychologically (in terms of increasing your motivation, self-interest, self-worth, and morale, becoming more involved in national programmes such as education, politics, health matters, agricultural issues, and developmental programmes, and fulfilling your potentiality as equal members of society) as compared to other females in your surrounding?

18. In your observation, do TVET programmes such as vocational training, entrepreneurship education, and financial assistance programmes have an effective role in the formation of economic growth of a community, society, province, or country?

19. What are the challenges, new or ongoing, that you faced/facing in the past, and present and are to encounter over the next coming months/years and the nature of these while performing your responsibilities as an entrepreneur/start-up businessman?

Miscellaneous/Ethical Issues

20. Is there anything you might like to add to what has been discussed?

21. Anonymity: Is there anything that we have discussed that one should be particularly very careful about in terms of its use?

Annexure: 3

Five Years Date of WTTC, GVI & BWBA

Center	Trade	2017	2018	2019	2021	2022
Women Technical Training CenterQuetta	Beautician	25	27	24	41	24
	Dress Making	30	45	37	33	25
	Secretarial	18	11	13		
	Computer				63	21
	Coking				31	
	Call Center Agent				20	
Government Vocational Institute Quetta	Beautician	25			36	40
	Dress Making	30	27	35	31	38
	Computer	24	20	26	29	20
	Coking	15	22			
Balochistan Women Business Assciation	Beautician		20		40	
	Dress Making		22		40	
	Computer				61	
	Coking		18			
	Call Center Agent				21	

Government Girls Polytechnic Institute, Saryab Road GGPI, Quetta

S. No	Session	2014	2015	2016	2017		2018& 2019	2020	2021	Total
1	Office Assistant	-	-	-	-		161	-	-	161
2	Dress Making	-	-	-	-		161	-	-	161
3	Computer Application	-	-	-	-		161	-	-	161
Grand Total							161			161
	NAVTTC SESSION									
S. No	Session	2014	2015	2016	2017	2018	2019	2020	2021	Total
1	Computer Application	20	20	20	-	20	20	20	20	140
2	Office Management	20	20	-	-	-	-	-	-	40
3	Dress Making	20	20	20	20	20	20	20	20	160
4	Beautician	-	-	20	20	20	20	-	-	80
5	Cooking	-	-	-	-	20	20	-	20	60
6	Fine Arts	-	-	-	20	-	-	-	-	20
Grand Total		60	60	60	60	80	80	20	60	480

UNHCR SESSION										
Sno	Session	2014	2015	2016	2017	2018	2019	2020	2021	Total
1	Dress Making	-	-	-	-	-	-	25	25	50
2	Beautician	-	-	-	-	-	-	25	25	50
3	Cooking	-	-	-	-	-	-	25	-	25
Grand Total								75	50	125

Government Vocational Institute for Women Quetta, Sirki Road
REGULAR AND CBT COURSES FROM 2006 TO 2022.
TRADES: DRESSMAKING, BEAUTICIAN, COPMUTE, HAND EMBROIDERY, COOKING, BEAUTY THERAPY, CBT (LEVEL - II)

S/NO	YEAR	INTAKE	DROP OUT	PASS OUT
1	2006	30	10	18
2	2007	40	6	34
3	2008	35	7	23
4	2009	35	7	23
5	2010	80	6	74
6	2011	103	2	101
7	2012	40	9	31
8	2013	40	15	25
9	2014	70	9	61
10	2015	70	15	55
11	2016	50	4	44
12	2017	130	3	127
13	2018	130	7	113
14	2019	130	12	118
15	2020	70 short courses	5	65
16	2021	110	14	96
17	2022	130	-	-
		TOTAL	TOTAL	TOTAL

Source: Authors' compilations based on visit to Government Vocational Institute Women Quetta.

Annexure: 4: Quantitative Analysis

		Frequency	Per cent
Valid	Strongly disagree	19	5.1%
	Disagree	38	10.3%
	Neutral	57	15.4%
	Agree	163	44.2%
	Strongly agree	91	9.7%
	Total	368	100.0%

		Frequency	Per cent
Valid	Strongly disagree	25	6.7%
	Disagree	20	5.4%
	Neutral	47	12.7%
	Agree	180	48.9%
	Strongly agree	96	26.1%
	Total	368	100.0%

		Frequency	Per cent
Valid	Strongly disagree	33	8.9%
	Disagree	36	9.7%
	Neutral	42	11.4%
	Agree	170	46.2%
	Strongly agree	87	23.6%
	Total	368	100.0%

		Frequency	Per cent
Valid	Strongly disagree	22	5.9%
	Disagree	34	9.2%
	Neutral	53	14.4%
	Agree	170	46.1%
	Strongly agree	89	24.1%
	Total	368	100.0%

		Frequency	Per cent
Valid	Strongly disagree	23	6.2%
	Disagree	29	7.8%
	Neutral	54	14.6%
	Agree	176	47.8%
	Strongly agree	86	23.3%
	Total	368	100.0%

		Frequency	Per cent
Valid	Strongly disagree	24	6.5%
	Disagree	30	8.1%
	Neutral	52	14.1%
	Agree	177	48.1%
	Strongly agree	85	23.1%
	Total	368	100.0%

		Frequency	Per cent
Valid	Strongly disagree	22	5.9%
	Disagree	35	9.5%
	Neutral	44	11.9%
	Agree	169	45.9%
	Strongly agree	98	26.6%
	Total	368	100.0%

		Frequency	Per cent
Valid	Strongly disagree	22	5.9%
	Disagree	30	8.1%
	Neutral	58	15.7%
	Agree	182	49.4%
	Strongly agree	76	20.6%
	Total	368	100.0%

		Frequency	Per cent
Valid	Disagree	46	12.5%
	Neutral	38	10.3%
	Agree	188	51.1%
	Strongly agree	96	26.1%
	Total	368	100.0%

		Frequency	Per cent
Valid	Disagree	48	13.0%
	Neutral	62	16.8%
	Agree	180	48.9%
	Strongly agree	78	21.1%
	Total	368	100.0%

		Frequency	Per cent
Valid	Strongly disagree	15	4.0%
	Disagree	32	8.6%
	Neutral	45	12.2%
	Agree	179	48.6%
	Strongly agree	97	26.3%
	Total	368	100.0%

		Frequency	Per cent
Valid	Strongly disagree	11	2.9%
	Disagree	36	9.7%
	Neutral	55	14.9%
	Agree	173	47.0%
	Strongly agree	93	25.2%
	Total	368	100.0%

		Frequency	Per cent
Valid	Strongly disagree	32	8.6%
	Disagree	40	10.1%
	Neutral	38	10.3%
	Agree	152	41.3%
	Strongly agree	106	28.8%
	Total	368	100.0%

		Frequency	Per cent
Valid	Disagree	29	7.8%
	Neutral	30	8.1%
	Agree	196	53.2%
	Strongly agree	113	30.7%
	Total	368	100.0%

		Frequency	Per cent
Valid	Strongly disagree	24	6.5%
	Disagree	29	7.8%
	Neutral	45	12.2%
	Agree	180	48.9%
	Strongly agree	90	24.4%
	Total	368	100.0%

		Frequency	Per cent
Valid	Disagree	45	12.2%
	Neutral	48	13.0%
	Agree	190	51.6%
	Strongly agree	85	23.0%
	Total	368	100.0%

		Frequency	Per cent
Valid	Strongly disagree	26	7.0%
	Disagree	37	10.0%
	Neutral	20	5.4%
	Agree	190	51.6%
	Strongly agree	95	25.8%
	Total	368	100.0%

		Frequency	Per cent
Valid	Strongly disagree	22	5.9%
	Disagree	37	10.0%
	Neutral	47	12.7%
	Agree	110	29.8%
	Strongly agree	152	41.3%
	Total	368	100.0%

		Frequency	Per cent
Valid	Strongly disagree	14	3.8%
	Disagree	31	8.4%
	Neutral	52	14.1%
	Agree	170	46.1%
	Strongly agree	101	27.4%
	Total	368	100.0%

		Frequency	Per cent
Valid	Strongly disagree	18	4.8%
	Disagree	28	7.6%
	Neutral	46	12.5%
	Agree	157	42.6%
	Strongly agree	121	32.8%
	Total	368	100.0%

INVESTIGATING THE EFFECT OF QUALITY AND RELEVANCE OF HIGHER EDUCATION ON ENGINEERING GRADUATES' EMPLOYABILITY

Aqsa Shabbir, Huma Tauseef, and Ali Hussain Kazim

ABSTRACT

This report provides a comprehensive analysis of the multifarious field of higher education, with a specific focus on the challenges encountered by engineering graduates from public universities in Punjab. The research delved into the historical evolution and importance of higher education, stressing its influence on personal growth and economic success. It explored the goals and advantages of higher education, emphasising the changing nature of tertiary education and its effects on societal growth and advancement. After an in-depth analysis of both qualitative and quantitative research, the study reveals the factors why engineering graduates are facing unemployment. It emphasises the crucial role of collaboration between industries and academia, the importance of developing practical skills, and ensuring that university curricula are aligned with the needs of the industry to improve graduates' chances of employment. The research also highlights major obstacles such as the mismatch between what universities teach and what employers look for in a graduate, the insufficient hands-on experience of graduates, and the necessity of possessing soft skills to smoothly transition into a successful career. Moreover, the research highlights the importance of stakeholders in influencing educational outcomes. A collaborative strategy is required to meet the dynamic demands of the job market. The importance of flexible teaching methods, high-quality educators, and regular updates to the curriculum is also emphasised to ensure that students graduate with the necessary skills for success in their careers. Additionally, the study explores gender gaps in the workforce, the impact of family background on employment opportunities, and the importance of work experience in making graduates more competitive and marketable. In conclusion, the research suggests a comprehensive and holistic strategy that brings together academia, industry, and policymakers to narrow the divide between education and work. It proposes targeted measures to improve hands-on skill building, support a curriculum that aligns with industry needs, and tackle social barriers that impact job opportunities. By creating a flexible and adaptable educational environment, the research aims to aid policy decisions that equip engineering graduates with the skills to excel in a tough job market and make valuable contributions to society.

1. INTRODUCTION

Higher Education

Education is ubiquitously recognised as a fundamental resource, both for individuals and societies. While education can be broadly categorised into early childhood, primary, secondary, and tertiary, the International Standard Classification of Education (ISCED) developed by the United Nations Educational, Scientific and Cultural Organization (UNESCO) in the mid-1970s and last revised in 2011, defines 9 levels of education (Figure 1). As educational systems vary between countries, the ISCED is a reference international classification that allows for a comparison between educational programmes across countries.

Higher education (HE), which corresponds to Levels 5, 6, 7, and 8 of the ISCED is tertiary education imparted through universities, colleges, and polytechnics. HE, while holding the status of last stage optional education in the educational hierarchy, is, nevertheless, highly sought after for different reasons.

Purpose of Higher Education

The purpose and functions of HE have been well studied and analysed. Barr (2020) elucidates the purpose as *"...Education outcomes comprise knowledge and skills and attitudes and values. Higher education therefore contributes both to national economic performance and to the promotion of core values, and thus has a significant cultural dimension."*

Figure 1: 9 Levels of Education as Specified in the International Standard Classification of Education (ISCED)

ISCED Levels	Education Levels	
ISCED 0	Early Childhood	
ISCED 1	Primary	
ISCED 2	Lower Secondary	
ISCED 3	Upper Secondary	
ISCED 4	Post-Secondary Non-Tertiary	
ISCED 5	Short Cycle Tertiary	Higher Education
ISCED 6	Bachelor's Degree	
ISCED 7	Master's Degree	
ISCED 8	Doctoral Degree	

Historically, the purpose of higher education was to develop and groom individuals for various domains of public service and/or advance knowledge through research. Harvard College (later Harvard University) founded in 1636 was intended for training and producing a learned clergy (Rudolph, 1962). Similarly, Dartmouth and Yale were also established for preparing clergymen and public servants. On the same lines as Harvard, the College of William and Mary was established to prepare clergymen for civil service (Brubacher, 2017). In general, HE institutions in colonial times allowed for upward social mobility and churned educated leaders and more informed citizens (Gutmann, 2012; Benson & Boyd, 2015). The advent of the 20th century, and particularly the post-World War II period, redefined the purpose and scope of HE. This redefining of the purpose of HE partly came across as a natural byproduct of physical capital being supplanted by knowledge and technology as the

source of development and resulting wealth.

Benefits

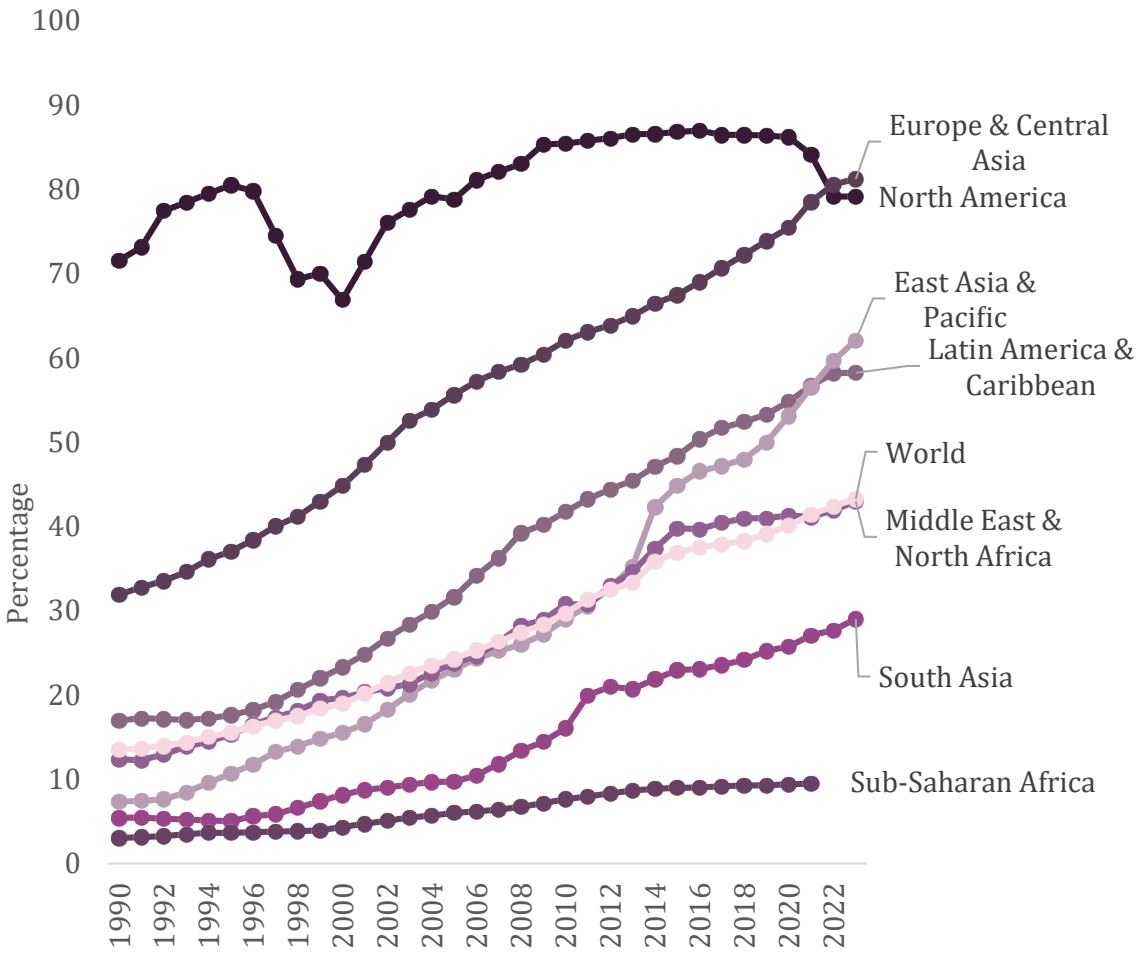
On one hand, it is accepted that the key purpose of HE is to prepare one for the workforce and on the other hand, it can be advocated that HE contributes to broader societal and individual benefits. This conundrum has been explored in several works (Chan, 2016); Levine, 2014; Brighouse & Mcpherson, 2015). Nevertheless, HE is being increasingly recognised for having social and economic benefits some of which are listed in Table 1. Brennan et al. (2013) segregate several wider advantages of HE along individual, societal, market, and non-market benefits. Borgonovi & Miyamoto (2010), Borgonovi (2012) and Calhoun (2006) analyse the impact of HE on public goods and conclude that HE has a positive influence and correlation with civic engagement, trust, tolerance, voting, and volunteering. Similarly, Machin et al. (2011) and Vorhaus et al. (2008) show that criminal activity is negatively correlated with HE. Kuntsche et al. (2004) have shown that people who have obtained HE are less likely to smoke, be obese, or prone to heavy drinking. Generally, obtaining HE enhances self-esteem and status, increases community engagement, cultivates interest in life-long learning, and individuals with HE tend to lead longer and healthier lives.

Table 1: Benefits and hence motive/ benefits of Higher Education

To an Individual (Private)	To Society (Public)
Better employment opportunities	Higher tax payments
Higher salary, higher knowledge	Increased community service and charitable disposition
Better work benefits	Higher appreciation for diversity
Improved work conditions	Reduced crime rates
Increased status, improved health Better consumer decision-making Self-esteem and independence Interpersonal and leadership skills Critical thinking and reflective Judgement	Racial understanding

Furthermore, the mere presence of higher education institutions (HEIs) brings far-reaching advantages including the generation and uplift of economic activity and the acceptance of diversity and multiculturalism. The existence of an HEI can improve the perception of a region/town/city resulting in investment and expansion. As also indicated in Table 1, the benefits of HE and HEIs to society range from greater social cohesion, tolerance, lower propensity to crime, higher tax revenues and labour market flexibility among other things. Benefits to an individual extend from a higher propensity to vote, volunteering, higher life expectancy, less likelihood of crime, better health care and civic engagement. These are in addition to the more fundamental advantages of better employment and higher earnings.

Figure 2: Regional Change in Gross Enrollment Ratio in Tertiary Education from 1970 to 2015



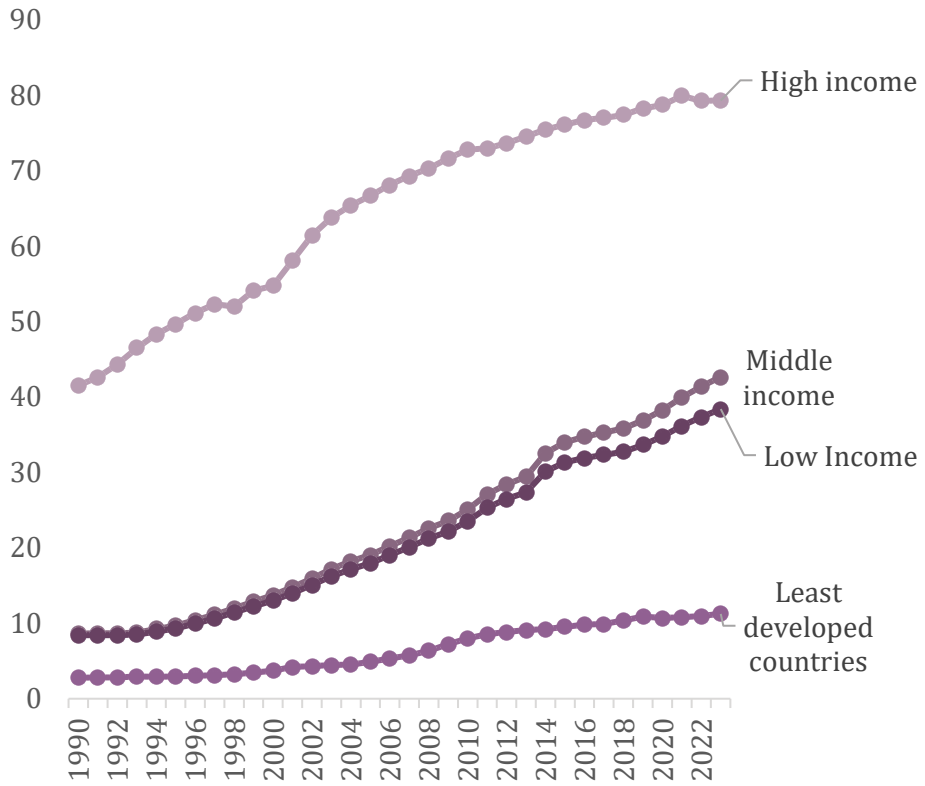
Source: Roser & Ortiz-Ospina (2016).

Higher Education across the Globe

This has led to a manifold increase in the gross enrollment ratio in HE across the world. As can be observed from Figures 2, 3, 4, and 6, the gross enrollment ratio in HE, which is taken as the percentage of total enrollment in tertiary education to the total population of the five-year age group from secondary school leaving (Roser & Ortiz-Ospina, 2016), has increased across the world steadily from around 10 per cent in 1970 to 36 per cent in 2016. While the gross enrollment ratio has grown across all regions of the world (see Figure 2), in 2015 it was the highest in North America at 84 per cent (an increase of 37.7%) and the lowest in Sub-Saharan Africa at 8.6 per cent (an increase of 7.20%). Nevertheless, from 1970 to 2015, it grew in Europe and Central Asia by 40 per cent, 37.7 per cent in Latin America and the Caribbean, 36 per cent in East Asia and Pacific, 32.2 per cent in Middle East and North Africa, and 16.6 per cent in South Asia by 16.6 per cent. This increase is evident if countries are clustered as high-income (an increase of 48%), middle-income (an increase of 27%), low-income (an increase of 5%), and least-developed (an increase of 7.5%) (see Figure 3). However, it is noteworthy that while the gross enrollment ratio for Pakistan has increased from 2.35 per cent in 1971 to 9.93 per cent in 2015, it is an alarmingly low increase when contrasted with neighbouring China and India (see Figure 4) for whom the gross enrollment ratio increased by 43 per cent and 22 per cent, respectively. Pakistan also consistently ranks below the South Asian average and has a gross enrollment ratio comparable to and slightly superior to Afghanistan. An analysis of

Figure 5 reveals broader changes in gross enrollment across Asia from 1995 to 2015, with the most notable increase in gross enrollment in China, Iran, Saudi Arabia, and India.

Figure 3: Change in Gross Enrollment Ratio in Tertiary Education from 1970 to 2015 Across High-Income, Middle-Income, Low-Income and Least-Developed Countries



Source: Roser & Ortiz-Ospina (2016).

Higher Education in Pakistan and Graduate Unemployment

Consistent with the increase in gross enrollment ratio, Pakistan in the last two decades has witnessed a rapid increase in HEIs and HE graduates (GOP 2020 and 2022a). At the time of independence, the nascent state of Pakistan inherited two universities, namely, the University of the Punjab and the University of Dhaka. India, on the other hand, had eight universities at the time of independence (GOP 2018). Although there were other prestigious colleges such as King Edward Medical College, Government College Lahore and Forman Christian College, but none of these were degree-awarding institutes.

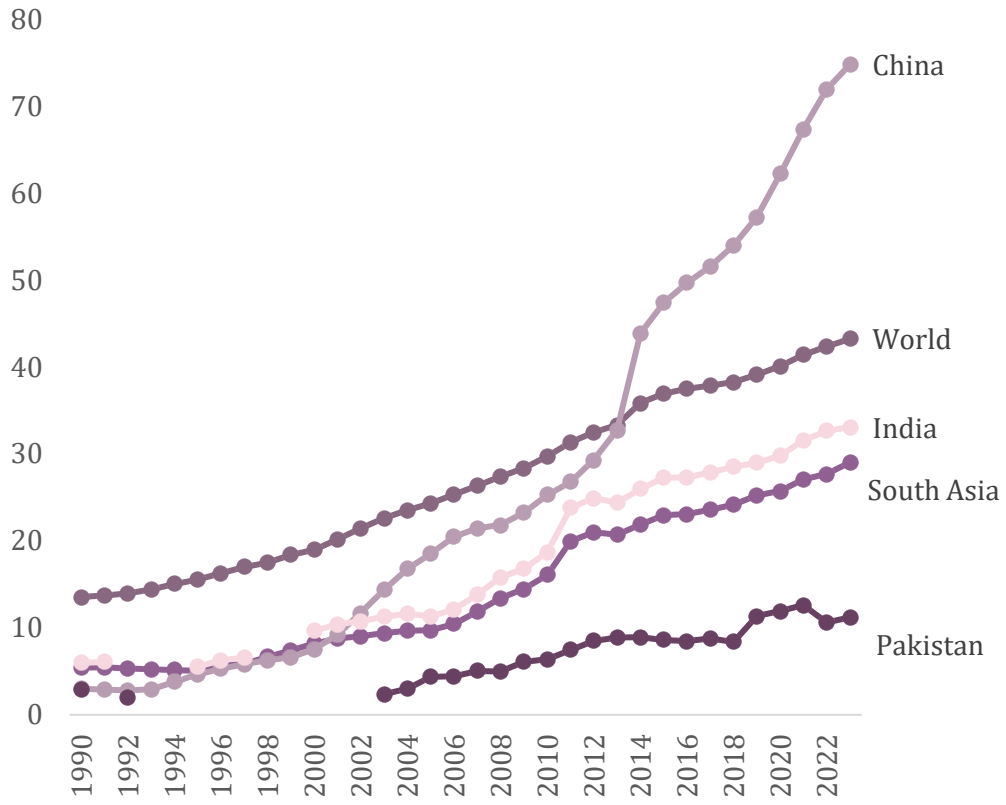
Table 2: Growth of Universities in Pakistan

Year	Universities	Year	Universities	Year	Universities
1947	2	1987	22	2006	111
1948	2	1990	22	2007	120
1950	2	1992	23	2008	124
1955	4	1993	27	2009	129
1960	4	1994	28	2010	132
1961	4	1995	34	2011	135

1962	6	1996	38	2012	139
1965	6	1997	41	2013	147
1967	7	1998	45	2014	161
1970	7	1999	46	2015	163
1972	8	2000	54	2016	163
1975	10	2001	59	2017	185
1977	12	2002	74	2018	186
1980	15	2003	96	2019	202
1982	20	2004	106	2020	218
1985	21	2005	108	2021	233

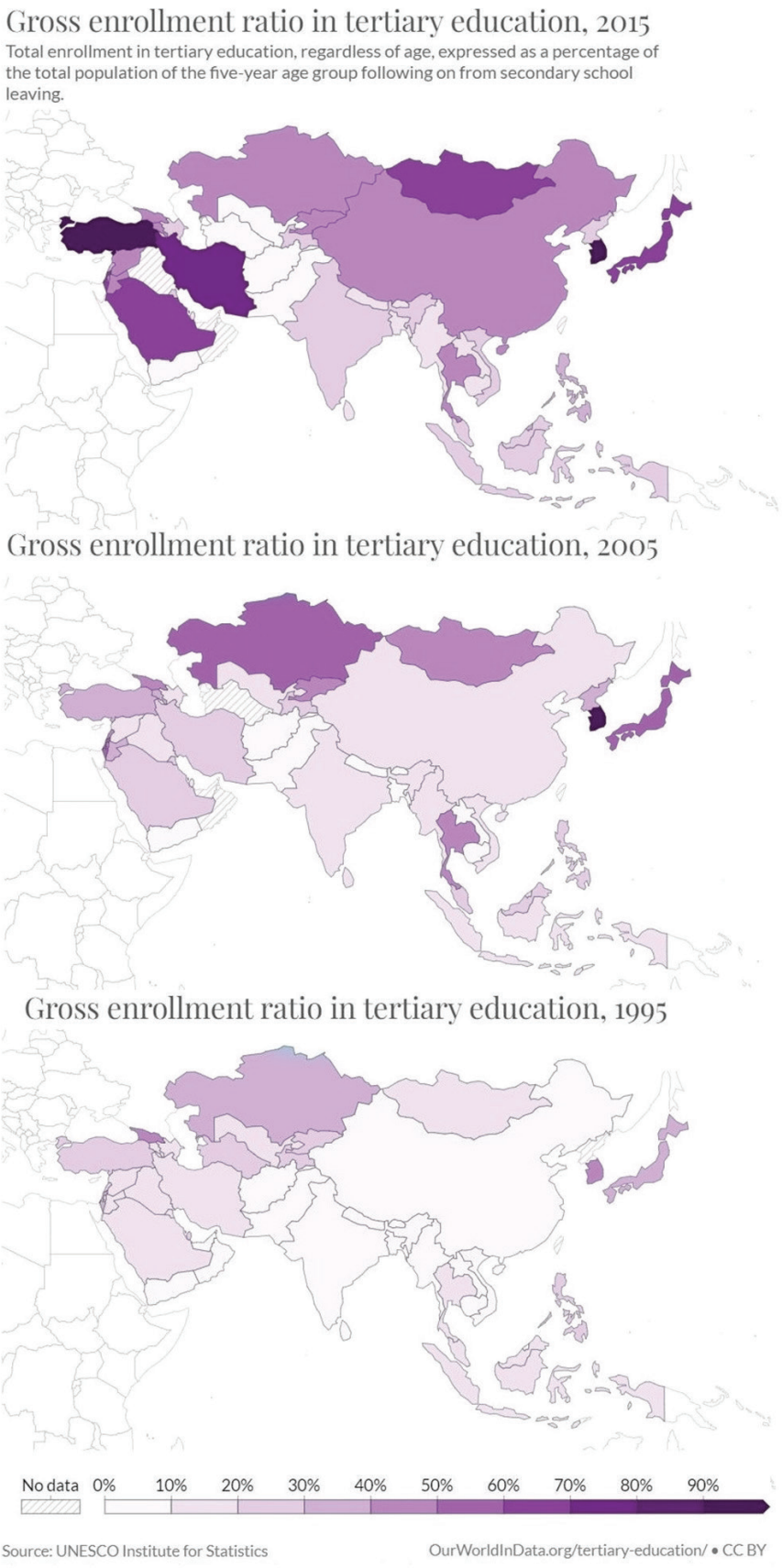
Sources: GOP 2020 and 2022a.

Figure 4: Change in Gross Enrollment Ratio in Tertiary Education from 1970 to 2015 in China, India, Pakistan, and Afghanistan. Note: These can be contrasted with South Asia and the world



Source: Roser & Ortiz-Ospina (2016).

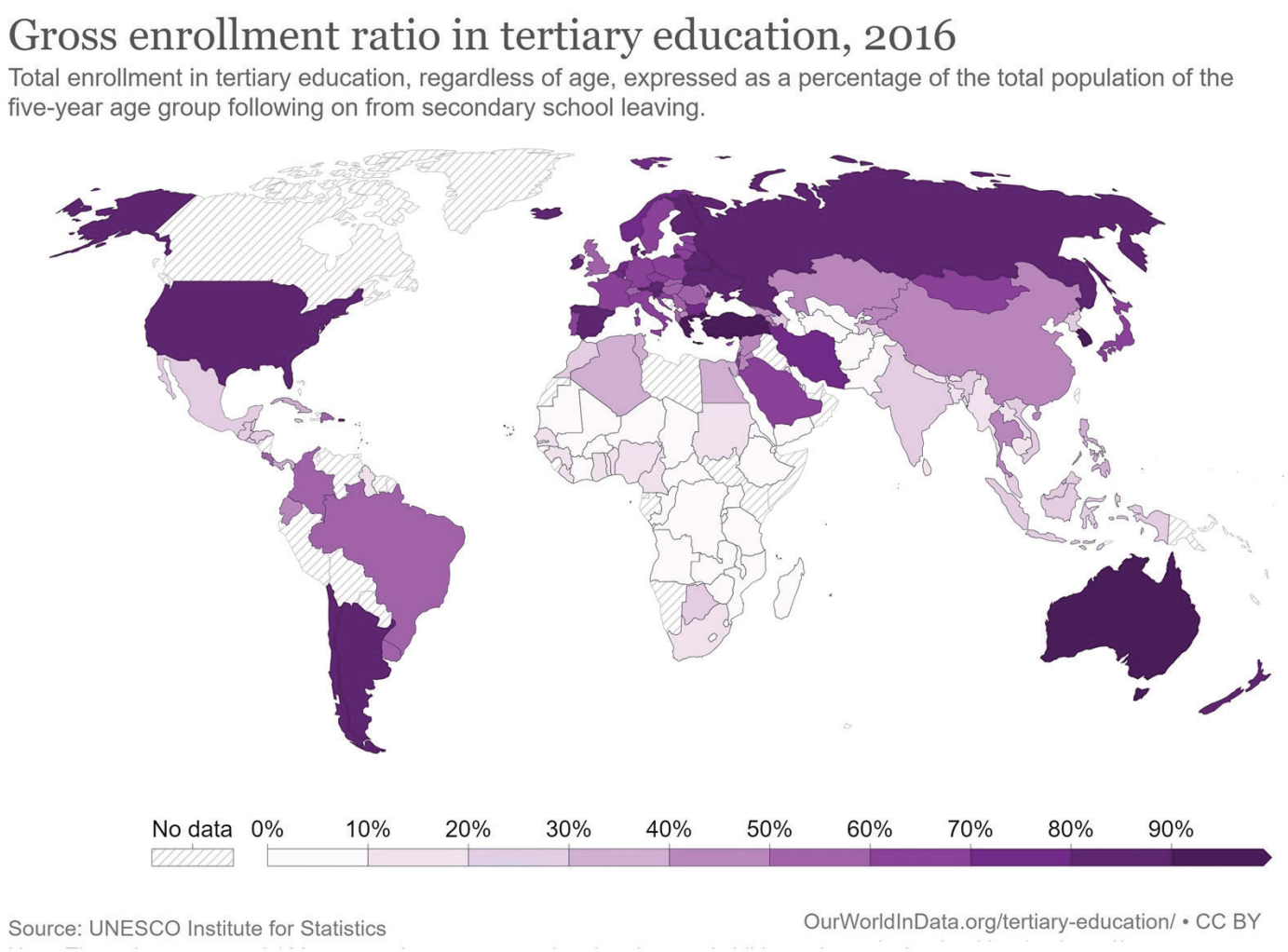
Figure 5: Gross Enrollment Ratio in Tertiary Education Across Asia in 2015, 2005, and 1995.



Source: Roser & Ortiz-Ospina (2016).

Note: Gross enrollment is designated as the total enrollment in tertiary education expressed as a percentage of the total population falling in the university-attending age group

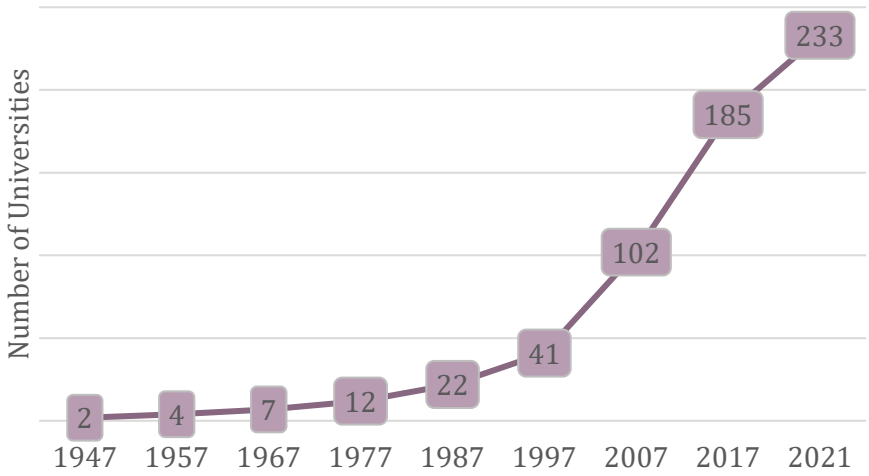
Figure 6: Gross Enrollment Ratio in Tertiary Education Across the World in 2016



Source: Roser & Ortiz-Ospina (2016).

While the number of universities gradually increased with time (see Table 2), the exponential rate of increase (see Figure 7) arrived with the onset of the new millennium, which also coincided with the demise of the University Grants Commission and its reincarnation as Higher Education Commission (HEC) in 2002. The increase in universities naturally led to an increase in university enrollment (see Figure 8) and, subsequently, university graduates. Unfortunately, the increase in the number of universities did not correlate with the development of mechanisms and systems for ensuring the quality or relevance of education (research and teaching) being imparted. The HEC introduced a national university ranking system in 2015 and 2016 but quietly disbanded it due to its inefficacy and resulting criticism. Although the HEC has been struggling, it, nevertheless, is attempting to ensure quality via Quality Enhancement Cells (QECs) and Offices of Research Innovation and Commercialization (ORICs) at HEIs. The Times Higher Education Ranking 2023 only ranked 29 Pakistani universities out of the 233 functional universities (see Figure 9). It is noteworthy that even among these so-called academically "elite" universities, not a single university ranks among the top 400 universities in the world.

Figure 7: Growth of Universities in Pakistan



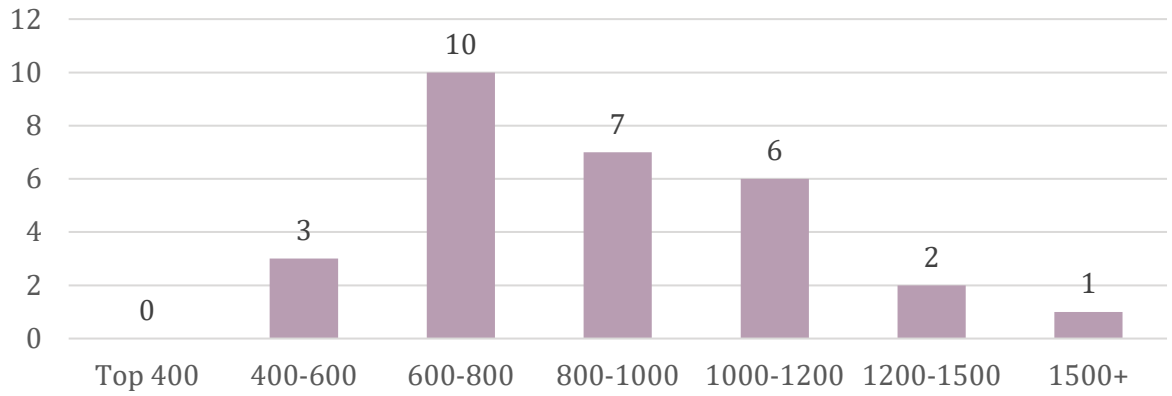
Sources: GOP 2020 and 2022a.

Figure 8: University Enrollment in 2018-19

Province/Region	Public			Private			Total Male	Total Female	Total
	Male	Female	Total	Male	Female	Total			
ICT	382,221	385,466	767,687	22,563	15,505	38,068	404,784	400,971	805,755
Punjab	201,990	205,739	407,729	88,015	55,319	143,334	290,005	261,058	551,063
Sindh	111,843	70,934	182,777	61,400	31,864	93,264	173,243	102,798	276,041
Khyber Pakhtunkhwa	84,840	30,327	114,411	36,331	9,389	45,720	120,415	39,716	160,131
Balochistan	25,358	10,972	36,330	492	164	656	25,850	11,136	36,986
Azad Jammu & Kashmir	11,795	12,643	24,438	974	1,189	2,163	12,769	13,832	26,601
Gilgit Baltistan	3,118	3,069	6,187	-	-	-	3,118	3,069	6,187
Pakistan	820,409	719,150	1,539,559	209,775	113,430	323,205	1,030,184	832,580	1,862,764

Source: GOP 2020.

Figure 9: Pakistani Universities in Times Higher Education World Universities Ranking 2023

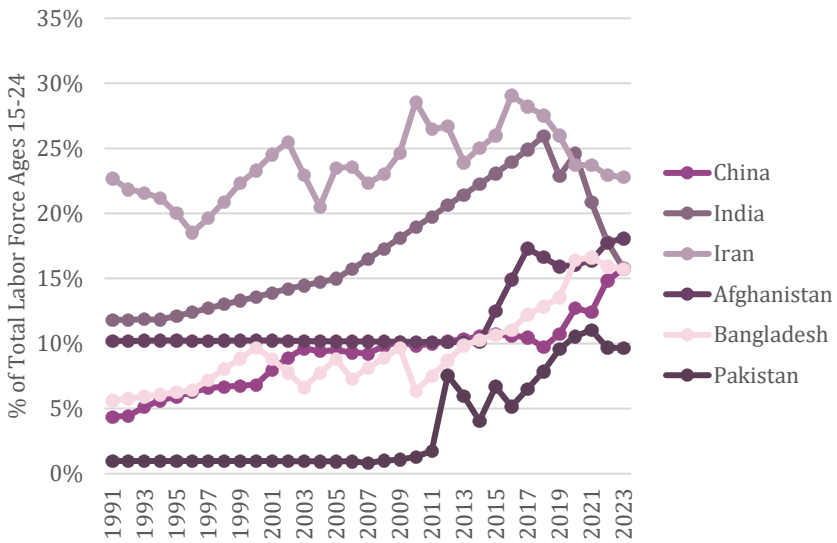


Note: Only 29 out of 233 universities appear and there is no Pakistani university in the top 400 universities of the world.
Source: Times Higher Education 2023.

Ironically, the increase in the number of universities and graduates positively correlates with youth unemployment. Youth unemployment in Pakistan is on the rise. Figure 10 presents the statistics of global youth unemployment as well as of Pakistan and its neighbouring countries from 1999 to 2020 as reported by the World Bank (2020). This is further observed by the inspection of Figure 11 [reproduced from GOP (2022b], which shows that youth, aged 15-34, comprised 75.9 per cent of the unemployed working-age population in 2021. Similarly, it can be noticed in Figure 12 that the unemployment rate of youth aged 15-29 was the highest and increased from an average of 7.2 per cent in 2009-10 to 8.7 per cent in 2010-11. Figure 13 illustrates an alarming detail: those with a degree constituted almost one-fourth of those unemployed in 2021. The degree holders constituted a higher proportion of unemployed when compared with illiterate, those with no formal education, and those with secondary (matriculation) or higher secondary (intermediate) school certificates. Figure 14 further testifies to the fact that not just youth unemployment is on the rise, but the unemployment of degree holders, in particular, is also on the rise. In 2018-19, of the total workforce employed, 8.5 per cent were degree holders, which reduced to 8.2 per cent in 2021. Figure 15 highlights another aspect of unemployment. While both males and females had an almost equal contribution to the working-age population in 2021, females were only one-third of the males in the labour force. Likewise, male unemployment was almost double that of female unemployment. While this may appear as a demand-supply problem, the unemployment riddle is much more complex.

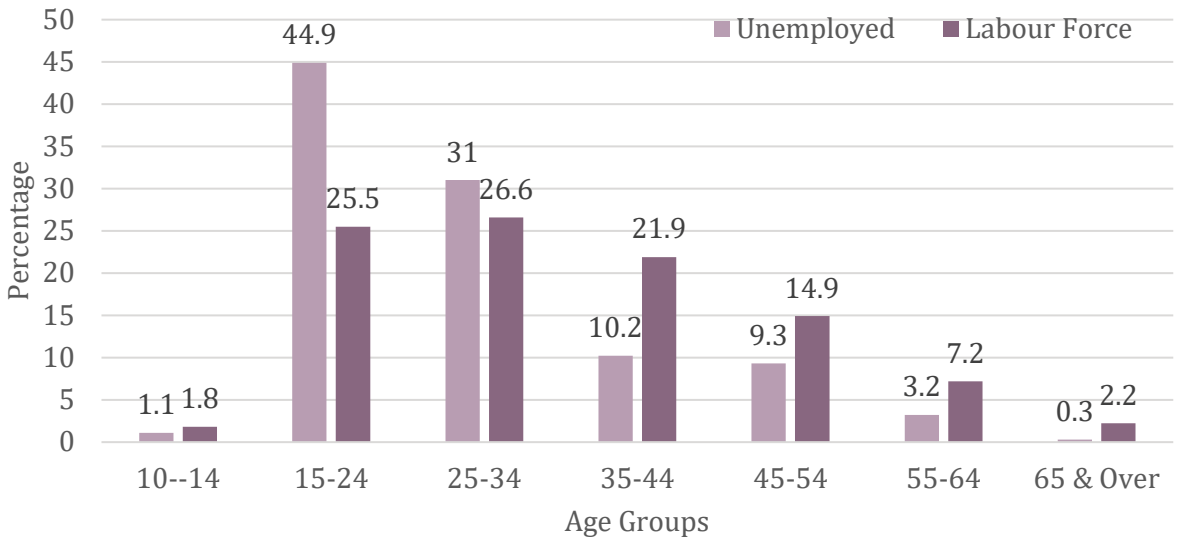
Much research has been done to determine the factors contributing to youth unemployment. Quitting a job in search of a better job is one of the contributing factors contributing in early professional life Maqbool et al. (2013). Youth are more inclined to change as well as an easy target during the downsizing of businesses (Bal-Domańska, 2022). Other factors include unfavourable market factors like lack of job security, frequent job switching, inability to maintain an active job position, lack of information about jobs, and financial problems (Doku et al., 2019). Almost 64 per cent of Pakistan's population is young (Faisal et al., 2019) and youth unemployment is on the constant rise. Multiple determinant factors indicate youth are more susceptible to unemployment than the older population. The main contributing factors are lack of experience, skills, education, and fewer opportunities for youth (Ali & Jabeen, 2016). Skill mismatch is a crucial factor that contributes to unemployment despite the availability of opportunities. These effects have been termed as "scarring effects" for society (Eichhorst et al., 2013). Unemployment deprives an individual of satisfaction and promotes evil and criminal activities among Youth (Imtiaz et al. 2020). Asalfew A. explored demographic and socio-economic determinants of youth unemployment and concluded that the major determinants are low literacy level, lack of professional education, nonavailability of social networking, and skills mismatch (Abera, 2011). Baah-Boateng W. determined gender-based discrimination and the education system's flaws as the culprits for youth unemployment (Baah-Boateng, 2013).

Figure 10: Youth Unemployment as Reported by the World Bank, 1991-2023



Source: World Bank (2020).

Figure 11: Age-Wise Distribution of Unemployed and Labour Force. Note: Youth (aged 15-34) comprises 75.9% of the unemployed working-age population, 2020-2021



Source: GOP 2022b

Figure 12: Age-Wise Distribution of the Unemployed Labour Force. Note: Youth, aged 15-29 Has One of the Highest Unemployment Rates Both in 2009-2010 And 2010-2011. Furthermore, the Youth Unemployment in 2010-11 Shows an Increase Over the Unemployment In 2009-10

Age Groups	2009-10			2010-11		
	Total	Male	Female	Total	Male	Female
10-14	10.8	9.8	12.9	10.3	11.5	8.0
15-19	8.9	8.3	10.9	10.6	10.3	11.4
20-24	7.9	6.8	12.1	10.0	8.5	15.2
25-29	4.8	3.4	9.3	5.4	4.4	8.8
30-34	2.6	1.5	5.8	2.4	1.8	4.3
35-39	2.3	1.5	4.8	2.1	1.4	4.1
40-44	1.8	1.3	3.8	1.6	0.9	3.7
45-49	2.8	2.3	4.5	2.5	2.0	4.1
50-54	4.4	2.9	10.1	3.4	3.0	5.0
55-59	5.9	3.9	13.4	5.3	4.4	8.8
60 years and above	10.6	7.3	28.6	11.9	8.3	29.1

Source: GOP (2010).

Figure 13: Note: In 2020-2021, Those with a Degree Constitute Almost One-Fourth of Those Unemployed. Alarmingly, the Degree Holders Are a Higher Proportion of Unemployed When Compared with Illiterate and Those with Just a Matriculation

Education Level	Employed	Unemployed	Out of Labour Force	Labour Force	Working Age Population
Total (Percentage)	100	100	100	100	100
Illiterate	38.8	18.5	37	37.5	37.2
No formal Education	1.2	1.4	0.7	1.2	1
Below Matric	31.7	24.4	43.3	31.2	37.9
Matric but below intermediate	13.4	18.8	10.1	13.8	11.8
Inter. but below Degree	6.7	13.3	5.2	7.2	6.1
Degree and above	8.2	23.5	3.6	9.2	6.1

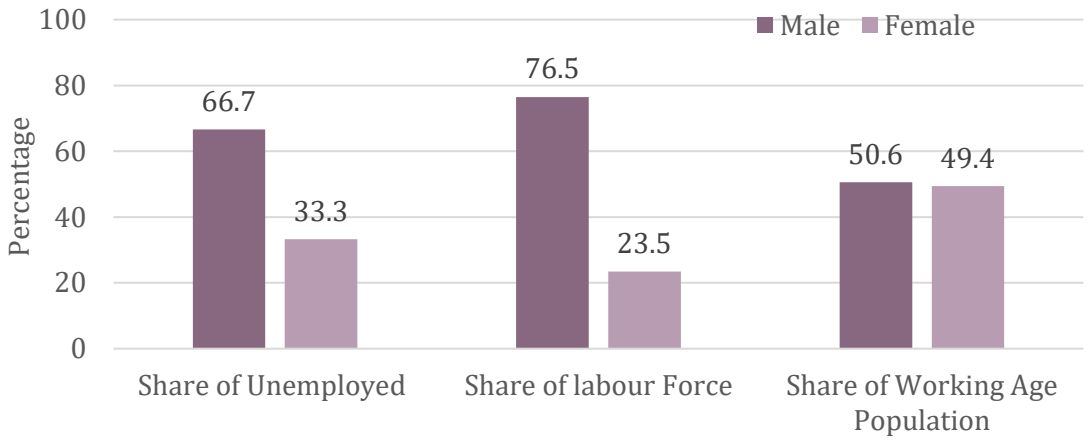
Source: GOP 2022b.

Figure 14: In 2020-2021, Those with a Degree Constitute 8.2% of Those Employed Which Is a Reduction from 2018-19 When the Degree Holders Constituted 8.5% of Those Employed

***Education Level**	**(2018-2019)**			**(2020-2021)**		
	Total	**Male**	**Female**	**Total**	**Male**	**Female**
Total (Percentage)	100	100	100	100	100	100
No Formal	41.4	32.8	70.1	38	30.2	64.4
Nursery but below K.G.	0.2	0.2	0.2	0.8	0.7	1
K.G but below primary	3.5	3.7	2.8	4.7	5	3.7
Primary but below middle	14.9	16.6	9.4	14.6	16	10
Middle but below matric	12	14.4	3.8	13.5	15.9	5.4
Matric but below intermediate	13.2	15.9	4.3	13.4	16.1	4.5
Inter. but below degree	6.2	7.4	2.4	6.7	7.9	2.8
Degree & Above	8.5	9	7	8.2	8.2	8.3

Source: GOP 2022b.

Figure 15: Gender-Wise Distribution of the Working-Age Population, Labour Force Participation and Unemployment in 2020-2021



Source: GOP 2022b.

Research conducted in Pakistan reveals that major determinants of youth unemployment are lack of variety in educational fields and deficiencies of proper skills in youth (Farooq, 2011). The findings pointed out that either the graduates produced are not in the fields that are in demand or the graduates lack the proper skillset needed. A study conducted recorded the causes of unemployment in educated youth and deduced that youth unemployment severely hampers a developing country's economic performance, failure to create ample jobs by the state, skills mismatch, lack of entrepreneurial skills in youth and job selection process. According to Jabeen, there is an incongruity between the perceptions of a graduating student and the expectations of the employer (Jabeen, 2011). Other factors explored and found to be significant are lack of discipline, required skills, professional attitude, professional grooming, time management, and communication skills. In Pakistan, research conducted in Peshawar concluded that determinants of youth unemployment include rising population, increase of competition, lack of resources and opportunities, lack of coordination between HEIs and Industry, attitude of youth towards work and their non-realistic expectation.

While unemployment plagues all strata of society, i.e., all age groups, gender, location (rural and urban) and education level, it is the unemployment among the educated which is the most painful as education is generally considered the pathway to better employment and an improved quality of life. An inspection of Figures 16 and 17 alone reveals that while a university degree sits atop the education pyramid, a startling 31.2 per cent of university degree holders were unemployed Haque & Nayab (2022). in 2018-19. More astonishing is the fact that female university degree holders' unemployment was 51 per cent as compared to 16 per cent for men. It is alarming because individuals, families, and society as a whole contribute towards these university degrees and also because there has been a mushroom growth in degree-awarding universities over the last two decades. Despite the worrisome educated youth unemployment numbers and the mushrooming growth of universities in Pakistan, this area is relatively less researched. No consolidated research study explores the different aspects of this multi-faceted problem in Pakistan.

Figure 16: Unemployment is a Phenomenon Experienced at All Levels of Education

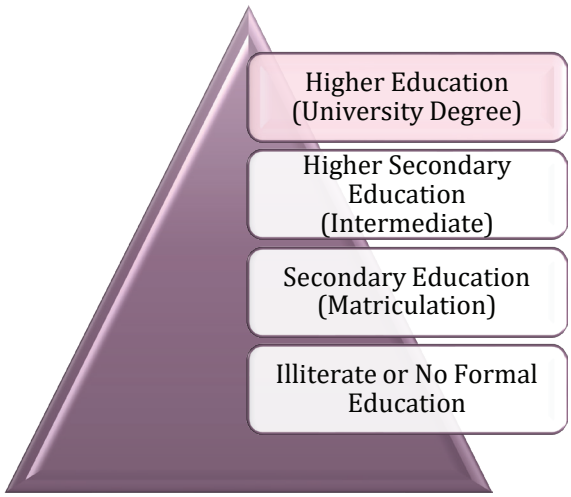
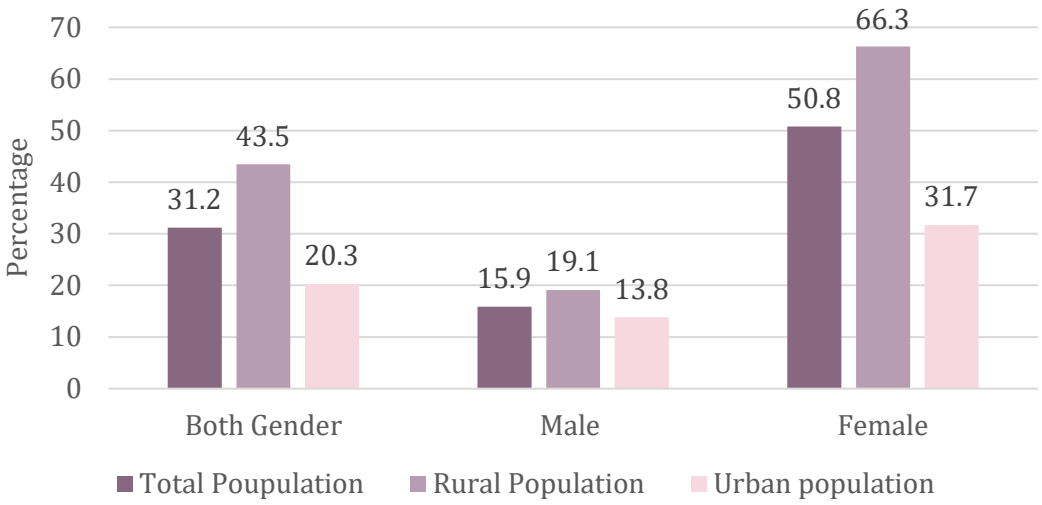
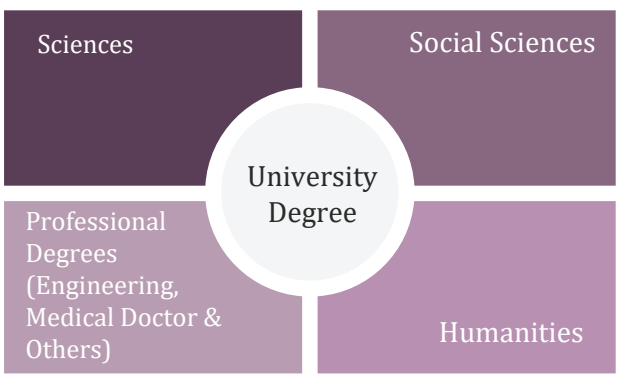


Figure 17: Unemployment Rates among Youth Aged 15-19 Years with Degrees



Source: Haque & Nayab (2022).

Figure 18: A Broad Categorisation of University Degree Disciplines



Exploration of Purpose of University Education/Degree in Pakistan

Due to the paucity of studies that look into youth unemployment in Pakistan, this study delved into exploring the purpose of higher education and the resulting university degrees being granted by Pakistani universities. The vision and mission of more than 230 Pakistani universities, both public and private were obtained from their websites and analysed to extract the goals, aims, and targets of the university. Common themes (goals, aims, targets) indicating the purpose of the university degree as extracted from the vision and mission of universities are presented in Table 3. The most common goal/purpose common to both public and private universities is to excel in research and innovation. The other goals/purposes include providing quality education, contributing to socio-economic development, enabling leadership and empowerment, imparting ethics and values, establishing industrial linkages, and attaining global recognition. Only 35 per cent of private universities and 28 per cent of public universities have the goal of producing employable graduates.

Table 3: Goals, Aims, and Targets of Pakistani Universities Extracted from the Visions and Missions of Universities

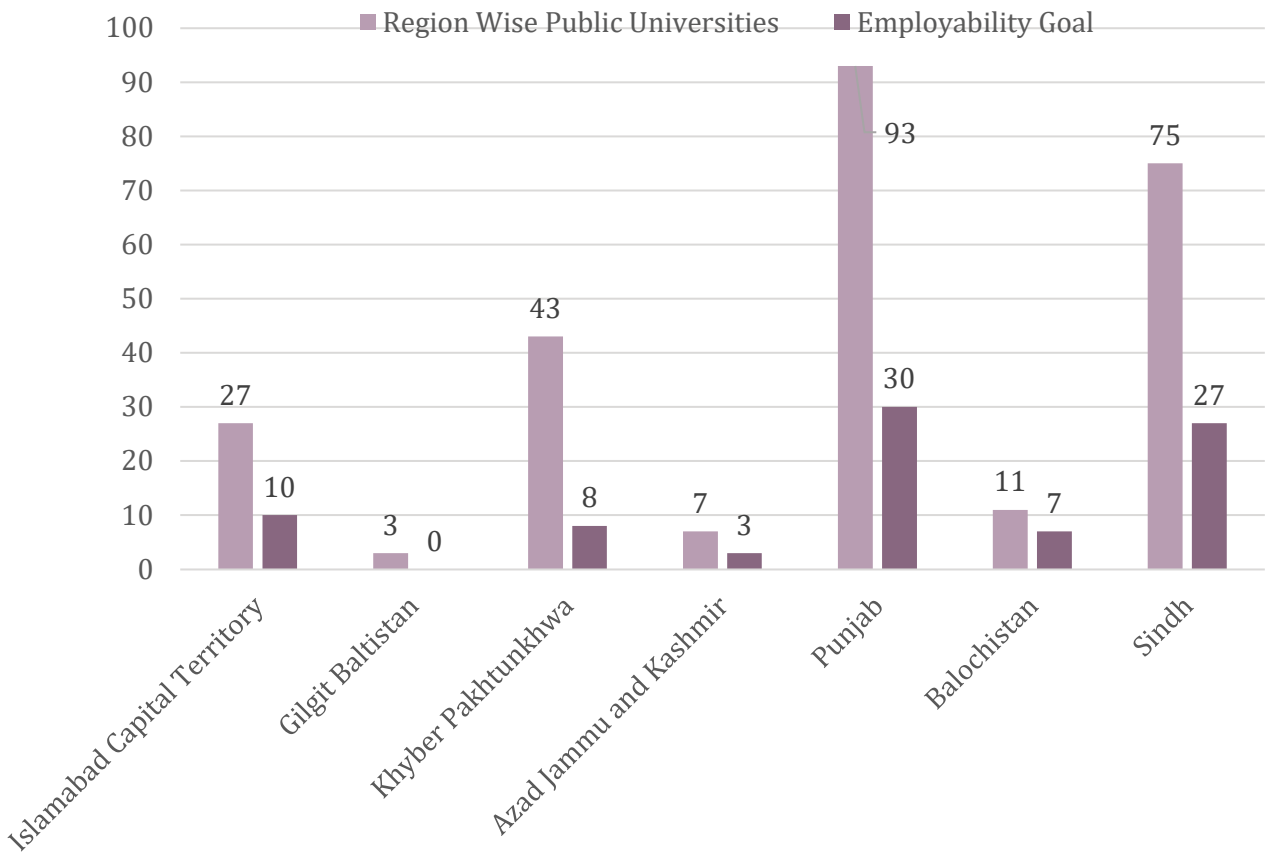
Purpose/Goals	Private HEIs (%)	Public HEIs (%)
Excel in Research & Innovation	58	29
Socio-Economic Development	37	21
Providing Quality Education	36	26
Producing Employable Graduate	**35**	**28**
Producing Skills/Creative Graduates	20	19
Producing Entrepreneurs	18	16
Global Recognition	15	21

Sources: Authors' calculation based on information available on website of various universities of Pakistan.

A further region-wise exploration of the proportion of public sector and private sector universities that have the goal of producing employable graduates is presented in Figures 19 and 20. This region-wise scenario is further laid out in Table 4. It notably shows that only 34 per cent of private sector and 26 per cent of public sector universities in Punjab have the goal of producing employable graduates. Similarly, an insight into the proportion of mature universities (those established before 2000) and newly established universities (those established after 2000) is presented in Figures 21 and 22, and Table 5.

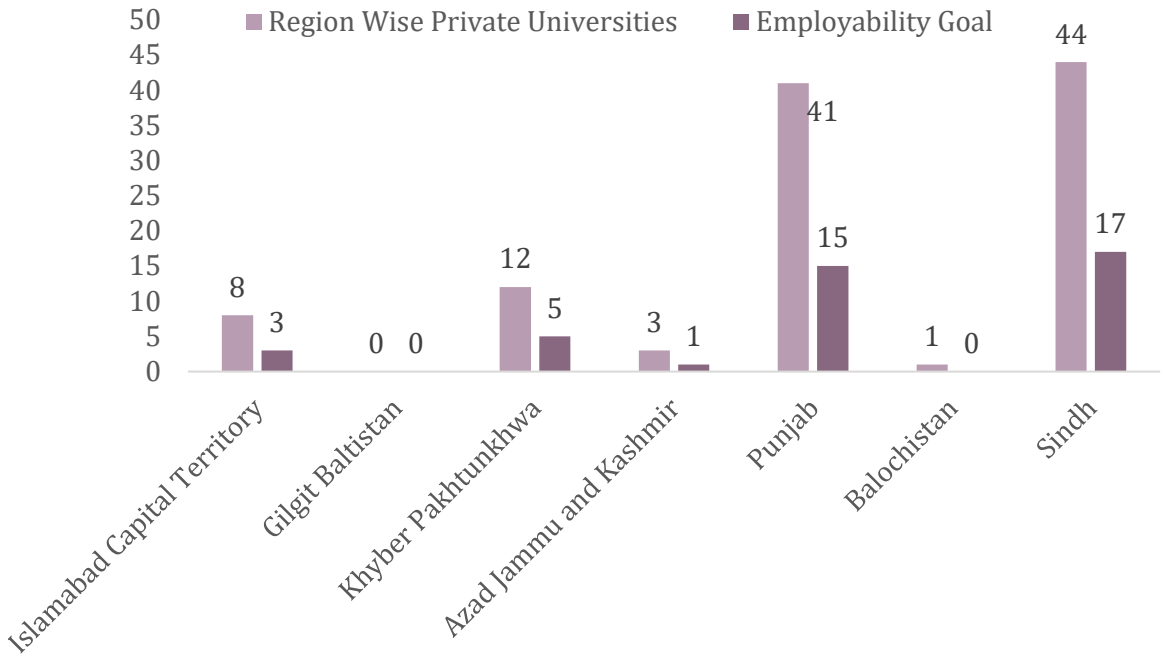
Once again, only 26 per cent of mature universities and 32 per cent of newly established universities in Punjab have the goal of producing employable graduates. Furthermore, among the specialised universities, represented in Figure 23, 37 per cent of engineering universities, 44 per cent of medical, and merely 17 per cent of agricultural universities have the goal of producing employable graduates.

Figure 19: Region-Wise Breakdown of the Proportion of Public Sector Universities with Producing Employable Graduates as their Goal



Sources: Authors' calculation based on information available on website of various universities of Pakistan.

Figure 20: Region-Wise Breakdown of the Proportion of Private Sector Universities with Producing Employable Graduates as their Goal



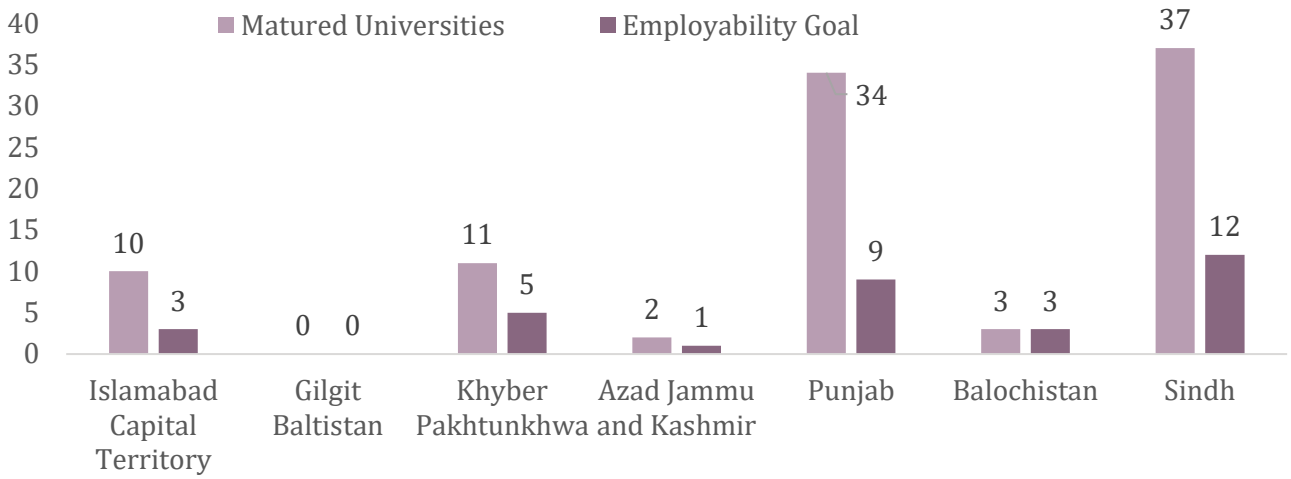
Sources: Authors' calculation based on information available on website of various universities of Pakistan.

Table 4: Region-Wise Breakdown of the Proportion of Universities with Producing Employable Graduates as their Goal

Region	Private HEIs (%)	Public HEIs (%)
Islamabad Capital Territory	25	47
Gilgit Baltistan	0	0
Khyber Pakhtunkhwa	36	12
Azad Jammu and Kashmir	50	20
Punjab	34	26
Balochistan	0	60
Sindh	37	65

Sources: Authors' calculation based on information available on website of various universities of Pakistan.

Figure 21: Proportion of Mature Universities (Established before 2000) with Producing Employable Graduates as a Goal



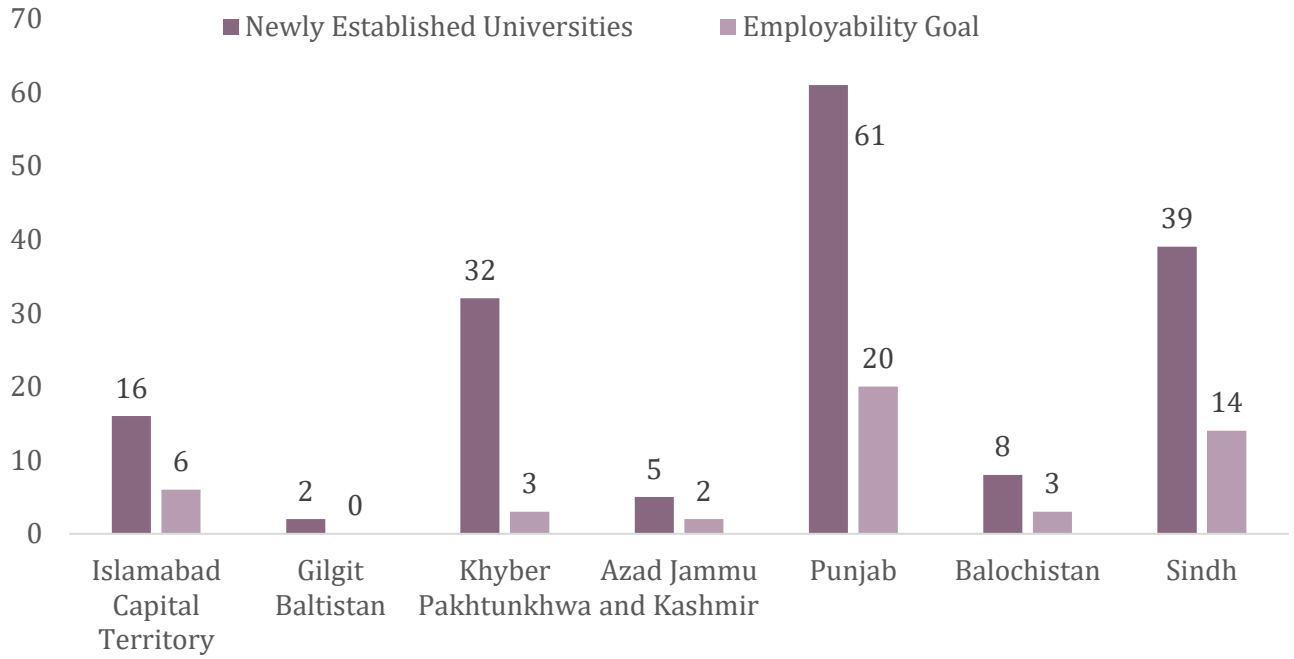
Sources: Authors' calculation based on information available on website of various universities of Pakistan.

Table 5: Proportion of Mature Universities (Established before 2000) and Newly Established Universities with Producing Employable Graduates as a Goal

Region	Mature HEIS (%)	Newly established HEIs (%)
Islamabad Capital Territory	30	47
Gilgit Baltistan	0	0
Khyber Pakhtunkhwa	36	12
Azad Jammu and Kashmir	0	40
Punjab	26	32
Balochistan	100	37
Sindh	33	37

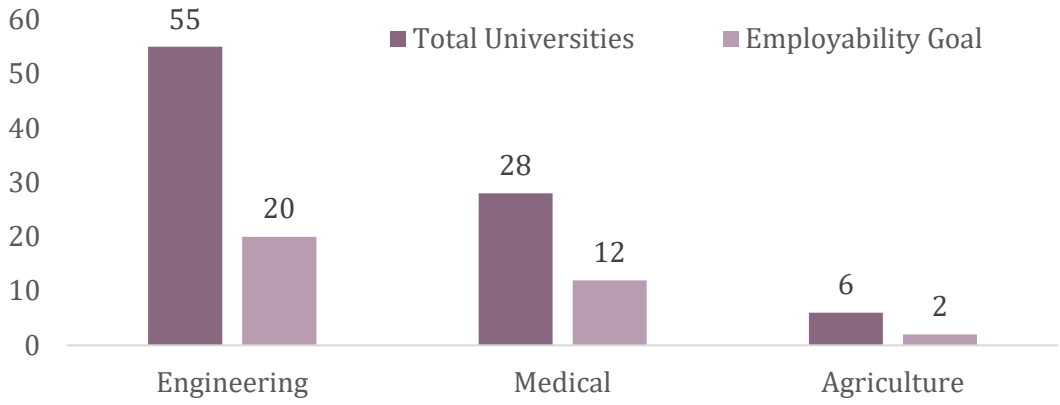
Sources: Authors' calculation based on information available on website of various universities of Pakistan.

Figure 22: Proportion of Newly Established Universities (Established after 2000) with Producing Employable Graduates as a Goal



Sources: Authors' calculation based on information available on website of various universities of Pakistan.

Figure 23: Proportion of Specialised Engineering, Medical, and Agricultural Universities with Producing Employable Graduates as a Goal



Sources: Authors' calculation based on information available on website of various universities of Pakistan.

2. METHODOLOGY AND SCOPE

Scope

The study focused on the unemployment of engineering graduates from public sector universities/HEIs in Punjab. There are several motivations for limiting the scope of the study to the unemployment of engineering graduates. As can be observed from Figure 18, a university degree can broadly be classified into one of the four: sciences, humanities, social sciences, and professional degrees. Professional degrees, which broadly include engineers, medical doctors, and pharmacists, among others, are the most sought-after degrees. This allowed us to

limit the scope of this study to engineering graduates for several reasons:

- Engineering is a coveted degree programme with an overarching perception that engineering graduates will most likely secure a suitable job, while those from other disciplines might struggle.
- Engineering schools have a relatively stronger or more evolved university-industry linkages where often there is a presence of industry members on university/departmental advisory boards and work placements are often well-publicised both with industry and the university.
- In a public-sector university, tax-payers/government financial and other resources, in addition to the graduates and their families, resources are invested.
- The last two decades have also witnessed an exponential rise in the Pakistan Engineering Council (PEC)'s accredited engineering programmes and universities.
- Despite the consensus on the importance of producing engineers, which are a workhorse of any country's industry, no research has been undertaken to map and quantify the unemployment of engineering graduates. A report by the PEC, published in March 2021, put the figure on unemployed engineers at 100,000 but does not have a system of accreditation of engineering programmes, which is linked to market demand.

Focus Engineering Programmes: There are currently more than 20 engineering programmes/degrees/specialities that are being taught across Pakistan's engineering universities. These include electrical, computer, mechanical, automotive, industrial and manufacturing, mechatronics, civil, transportation, architectural, environmental, chemical, metallurgical and materials, polymer and process, petroleum and gas, mining, geological, biomedical, food, textile and energy, among others. However, in this study, we focused on the following 6 engineering disciplines:

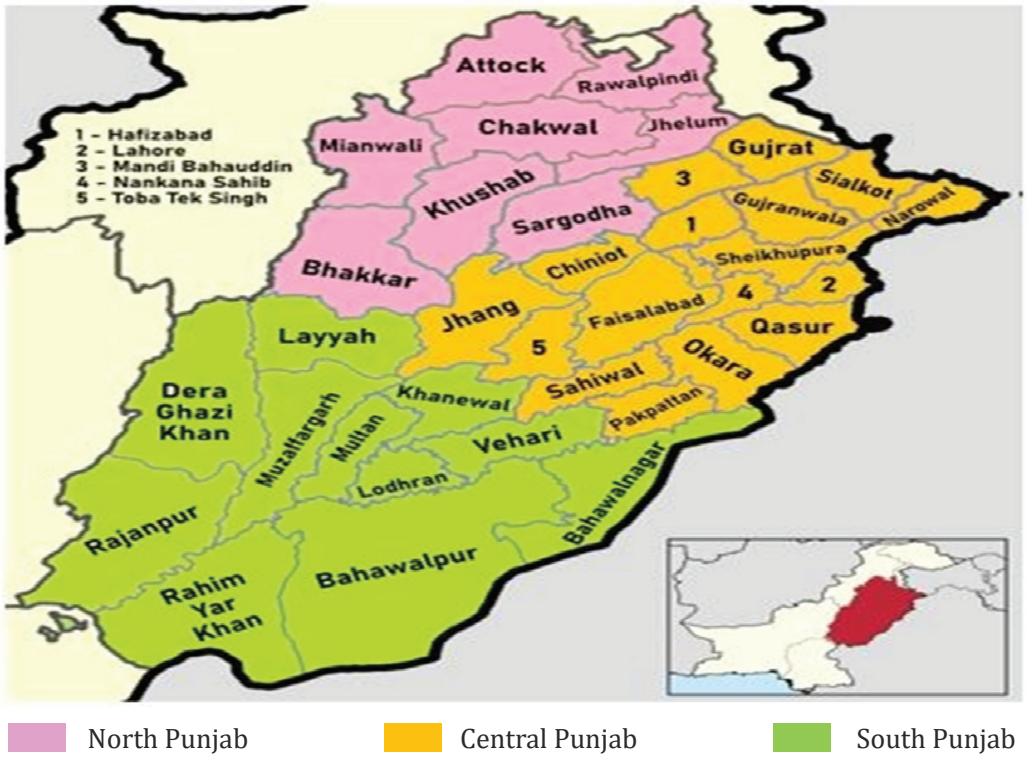
- Electrical
- Chemical
- Civil
- Mechanical
- Automotive
- Biomedical

While electrical, chemical, civil, and mechanical engineering programmes are the oldest and core engineering disciplines, automotive and biomedical are two relatively new and more "in vogue" fields with emerging scope.

Focus HEIs: This study limited itself to the unemployment of engineering graduates from public-sector universities in Punjab. Punjab with the largest population and the maximum number of engineering programmes/universities is a suitable choice.

Unemployed engineering graduates are defined as those who graduated not more than three years ago and were actively looking for a job/employment for over a month. These include both voluntarily and involuntarily unemployed but do not include underemployed or over-employed.

Figure 24: Regions of Punjab



Source: Wikiepdia (2024).

A public-sector university is considered as one that is in state/government ownership and/or receives public funds through national or a sub-national source, which are the Higher Education Commission (HEC), Punjab Higher Education Commission (PHEC), and Higher Education Department (HED) in this case. Public sector universities and their campuses within the geographical boundary of Punjab are further of two kinds:

- Chartered by the Government of Pakistan/Federal Government
- Chartered by the Government of Punjab/Provincial Government

Geographically, Punjab can be divided into three broad regions, namely, northern, central, and Southern as shown in Figure 24. An exhaustive list of HEIs (universities + campuses) across the northern, central, and southern regions of Punjab offering electrical, mechanical, civil, chemical, automotive, and biomedical engineering is given in Table 6. Table 6 also lists the total enrollment per year in each HEI as well as the enrollment per year for each discipline. The following features can be noted:

- COMSATS University Islamabad (CUI) and National University of Science and Technology (NUST), which are multi-campus universities chartered by the Federal Government and have their principal seats in Islamabad, have been included in the analysis because their campuses are located within the geographical boundary of Punjab.
- The northern region has 7 HEIs, including 3 universities and 4 university campuses.
- The central region has 14 HEIs, including 7 universities, 5 university campuses, and 2 affiliated colleges/institutes.
- The southern region has 5 universities.

Further, Table 7 and Figure 26 present the total enrollment per year, which is an important indicator of total graduates per year in electrical, mechanical, civil, chemical, automotive, and biomedical engineering across public sector HEIs in Punjab. Electrical engineering had the highest enrollment, while automotive engineering had the lowest enrollment.

Table 6: List of Public-sector HEIs (universities + campuses) across North, South And Central Punjab which offer Electrical, Mechanical, Civil, Chemical, Automotive and Biomedical Engineering. Also Listed Is Enrollment Per Year (As Allowed by Pakistan Engineering Council) in Each Discipline in Each HEI (University + Campus) As Well As Total Enrollment Per Year in Each HEI (University + Campus)

HEIs	Discipline	Enrollment	Total Enrollment
North Punjab			
UET Taxila	Electrical	150	560
	Mechanical	200	
	Civil	210	
CUI (Wah Campus)	Electrical	200	360
	Mechanical	80	
	Civil	80	
CUI (Attock Campus)	Electrical	80	80
NUST College of Electrical & Mechanical Engineering, Rawalpindi	Electrical	150	300
	Mechanical	150	
NUST Military College of Signals, Rawalpindi	Electrical	200	200
NUML (Previously APCOMS)	Electrical	140	180
	Civil	40	
University of Sargodha	Electrical	40	120
	Mechanical	40	
	Civil	40	
Total			1800
Central Punjab			
UET Lahore (Main Campus)	Electrical	200	750
	Mechanical	750	
	Civil	200	
	Chemical	200	
	Automotive	100	
UET Lahore (Narowal Campus)	Electrical	40	170
	Mechanical	40	
	Civil	40	
	Bio-Medical	50	
UET Lahore (KSK Campus)	Electrical	100	350
	Mechanical	100	
	Chemical	100	
	Bio-Medical	50	
RCET, Gujranwala (Affiliated with UET Lahore)	Electrical	50	100
	Mechanical	50	

UET Lahore (Faisalabad Campus)	Electrical	100	140
	Chemical	40	
NFC IEFR, Faisalabad (Affiliated with UET Lahore)	Electrical	80	340
	Mechanical	80	
	Civil	80	
	Chemical	100	
CUI (Lahore Campus)	Electrical	140	240
	Chemical	100	
CUI (Sahiwal Campus)	Electrical	80	290
	Mechanical	160	
	Civil	50	
GCU Faisalabad	Electrical	80	80
GCU Lahore	Electrical	50	50
University of the Punjab	Electrical	40	140
	Chemical	100	
ITU Lahore	Electrical	80	80
University of Gujrat	Electrical	40	120
	Chemical	80	
LCWU Lahore	Electrical	50	50
Total			2900
South Punjab			
KFUEIT, Rahim Yar Khan	Electrical	50	200
	Mechanical	50	
	Civil	50	
	Chemical	50	
NFC IET, Multan	Electrical	120	320
	Mechanical	40	
	Civil	40	
	Chemical	120	
Islamia University, Bahawalpur	Electrical	40	90
	Civil	50	
MNS UET Multan	Electrical	40	80
	Chemical	40	
BZU Multan	Electrical	50	140
	Mechanical	50	
	Civil	40	
Total			830

Sources: Authors' calculation based on information available on website of various universities of Pakistan.

Relevance to Public Policy

The proposed research will contribute towards public policy, particularly about:

- The quality of imparted education, measures of quality assessment, measures of continuous quality improvement
- Engineering education regulatory bodies

- Insights into opening/closing/strengthening of engineering programmes
- An educational policy with an end goal of producing required graduates who are employable

It will further facilitate unemployed engineering youth, thus aligning with the report of Voluntary National Review that was published by the Federal Ministery for Planning, Development & Special Initiatives, Pakistan, for the implementation of the 2030 Agenda for Sustainable Development. The report states that *Pakistan's focus on sustainable, inclusive economic growth and decent work will be essential for addressing the challenges of a young, rapidly growing and urbanizing population, addressing underemployment and unemployment, and raising the living standard of people.* This research will further facilitate the adoption of Sustainable Development Goals (SDGs) and cover the SDG indicators listed in detail in Figure 25:

Figure 25: SDG Indicators That This Research Will Cover

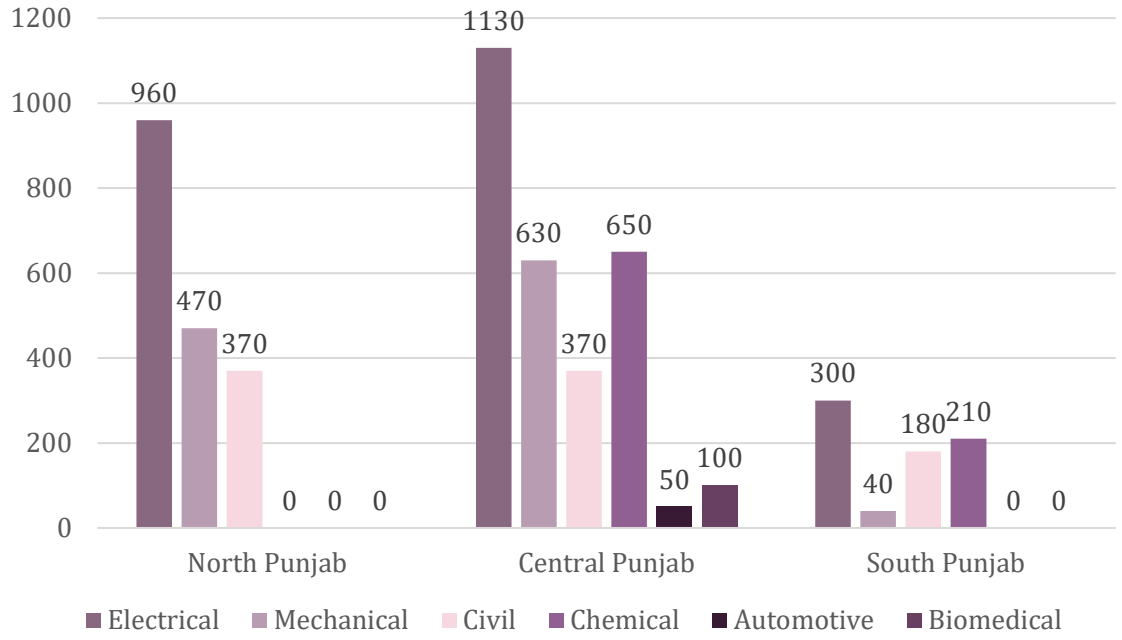
Sr.	Indicator	Description
1	4.3.1	Participation Rate of Youth and Adults in Formal and Informal Education and Training by sex
2	5.5.2	Proportion of women in managerial positions
3	8.5.1	Average hourly earnings of employees, by sex, age, occupation and persons with disabilities
4	8.5.2	Unemployment rate, by sex, age and persons with disabilities
5	8.6.1	Proportion of youth (aged 15-24 years) not in education, employment or training
6	8.7.1	Proportion and number of children aged 5-17 years engaged in child labour by sex and age (Partially covered)
7	8.9.2	Number of jobs in tourism industries as a proportion of total jobs and growth rate of jobs, by sex (Percentage)
8	9.2.2	Manufacturing employment as a proportion of total employment

Table 7: Total Enrollment Per Year in Public Sector HEIs in Punjab in Electrical, Mechanical, Civil, Chemical, Automotive and Biomedical Engineering Programs

	Electrical	Mechanical	Civil	Chemical	Automotive	Biomedical
North Punjab	960	470	370	-	-	-
Central Punjab	1130	630	370	620	50	100
South Punjab	300	140	180	210	-	-
Total	2390	1240	920	830	50	100

Sources: Authors' calculation based on information available on website of various universities of Pakistan.

Figure 26: Total enrollment per year in engineering programs in public sector HEIs in north, central and south Punjab



Sources: Authors' calculation based on information available on website of various universities of Pakistan.

Research Problem

As outlined in chapter 1, while the last two decades have witnessed an unprecedented rise in the number of universities in the country and, consequently, university graduates, this quantitative increase has not necessarily correlated with the quality of the graduates. There is an increase in the unemployment of university graduates, which brings us to the natural question:

Is it the quality or the nature/relevance of university education that is causing/influencing graduate unemployment?

Methodology

Mixed Methods Approach

A mixed methods approach has been used involving the following stakeholders:

- Job seeker (fresh engineering graduate who graduated less than 3 years ago, i.e., in 2022, 2021, 2020).
- Current senior-year students (students in the last year of their undergraduate engineering degree, who are beginning the process of the job hunt).
- University teachers/instructors
- University administrators (vice-chancellors, deans, career counselling officers,
- director of student affairs, directors of ORIC, directors of QEC, etc.).

- Industry (job giver)
- Civil society (including members from engineering regulatory bodies and federal and provincial higher education commissions).

Qualitative and quantitative data collection was planned and implemented. As part of qualitative research, in-depth interviews were carried out using purposive sampling. The participants were selected from the above stakeholders and the sample size was determined based on theoretical saturation. Data review and analysis were done in conjunction with data analysis. The following methodology was adopted for data review and analysis:

- Data familiarisation: The in-depth interviews were transcribed and the data was thoroughly read and examined.
- Coding: Important features of the data were coded systematically. Data was collated for each code.
- Generating, reviewing, and defining themes: Collating codes into potential themes, reviewing, analysing, and finalising themes.
- Software-based validation: the use of NVivo software for deriving themes and drawing conclusions
- Analysis and report: Research findings based on qualitative data analysis were compiled and finalised.

For quantitative data analysis, seven data collection instruments were developed and executed via Google Forms. Each data collection instrument broadly has four sections, namely, participant introduction, the quality of education, relevance of education, and other factors. Table 8 outlines the mapping of questions in the data collection instrument for graduates and current students to the parameters of the research question. Question 9 in the Participant Introduction inquires about the future plans/current status of current students and fresh graduates, respectively. Those individuals who did not wish to seek a job either because they were planning to indulge in business, had moved abroad, continued higher studies, or opted to stay at home/gap year, were immediately asked the reason for not wanting to seek a job. Thus, after this point, the questions were asked of only those who were job seekers. Tables 2.4, 2.5, and 2.6 outline the mapping of questions in the data collection instrument for university administration, faculty, industry, and civil society to the parameters of research questions. The data collection instruments were designed to be concise, relevant, and simple in language.

Ethical Protocols

This work received full ethical approval from the Institutional Research Ethics Board of Lahore College for Women University.

In qualitative research, all participants provided written informed consent. The study brief informed them that they were free to withdraw at any time, should they wish to do so. Participants consented to the audio/video recording of interviews as well as the use of photographs. The interviews were subsequently anonymised and transcribed. Interviews were stored on a password-protected Google Drive, which houses all data. Similarly, in quantitative research the ethics of voluntary participation, informed consent, anonymity, confidentiality, and potential for harm were upheld.

Table 8: Mapping of Questions in Data Collection Instrument for Graduates and Current Students to Parameters of Research Question

	Section	Number of questions
1	**Participant Introduction**	**09**
	Personal identification information and future plan/current status of student/graduate	Q.1-Q.9
2	**Quality of Education**	**06**
	Courses taught	Q.10
	Teacher's knowledge and teaching method	Q.11 -Q.13
	Facilities, resources and environment	Q.14-Q.15
3	**Relevance of Education**	**06**
	Education Design/Curriculum	Q.16-Q.17
	Skills	Q.18-Q.19
	Co-curricular Activities	Q.20
	Practical Exposure	Q.21
2	**Other**	**06**
	Demand/Supply Problem	Q.22
	Perception/repute of HEI	Q.23
	Language Barrier	Q.24
	Family Background/Socio-Economic Status	Q.25
	Gender Discrimination	Q.26
	Top traits for getting a job	Q.27
	Total questions per participant	**27**

Table 9: Mapping of Questions in Data Collection Instrument for University Administration to Parameters of Research Question

	Section	Number of questions
1	**Participant Introduction**	**04**
	Personal identification information	Q.1-Q.4
2	**Quality of Education**	**05**
	Courses taught	Q.5
	Teaching faculty knowledge and methodology	Q.6
	Facilities, resources and environment	Q.7-Q.8
3	**Relevance of Education**	**06**
	Education Design/Curriculum	Q.9
	Skills	Q.10-Q.12
	Co-curricular Activities	Q.13
	Practical Exposure	Q.14

2	**Other**	**06**
	Demand/Supply Problem	Q.15
	Perception/repute of HEI	Q.16
	Language Barrier	Q.17
	Family Background/Socio-Economic Status	Q.18
	Gender Discrimination	Q.19
	Top traits for getting a job	Q.20
	Total questions per participant	**20**

Table 10: Mapping of Questions in Data Collection Instrument for University Faculty to Parameters of Research Question

	Section	Number of questions
1	**Participant Introduction**	**06**
	Personal identification information	Q.1-Q.6
2	**Quality of Education**	**03**
	Courses taught	Q.7
	Teaching faculty knowledge and methodology	Q.8-Q.9
	Facilities, resources and environment	Q.7
3	**Relevance of Education**	**06**
	Education Design/Curriculum	Q.10-Q.11
	Skills	Q.12-Q.13
	Co-curricular Activities	Q.14
	Practical Exposure	Q.15
2	**Other**	**06**
	Demand/Supply Problem	Q.16
	Perception/repute of HEI	Q.17
	Language Barrier	Q.18
	Family Background/Socio-Economic Status	Q.19
	Gender Discrimination	Q.20
	Top traits for getting a job	Q.21
	Total questions per participant	**21**

Table 11: Mapping of Questions in Data Collection Instrument for Industry and Civil Society to Parameters of Research Question

	Section	Number of questions
1	**Participant Introduction**	**05**
	Personal identification information	Q.1-Q.5
2	**Quality of Education**	**05**
	Progress metrics, knowledge of graduate	Q.6-Q.7
	Quality dependency on the status and geographical location of HEI	Q.8-Q.10

3	**Relevance of Education**	**03**
	Skills	Q.11
	Education Design/Curriculum	Q.12-Q.13
2	**Other**	**06**
	Demand/Supply Problem	Q.14
	Perception/repute of HEI	Q.15
	Language Barrier	Q.16
	Family Background/Socio-Economic Status	Q.17
	Gender Discrimination	Q.18
	Top traits for getting a job	Q.19
	Total questions per participant	**19**

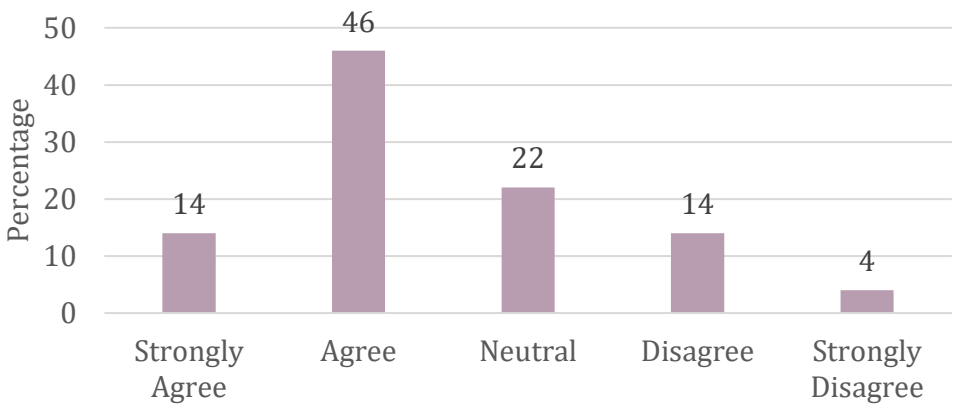
3. QUANTITATIVE DATA ANALYSIS-I

Fresh Graduates/Job Seekers

Fresh engineering graduates, whom we also refer to as alumni, are a critical part of the educational ecosystem as they form a bridge between industry and HEIs. To this end, universities have recently started engaging their alumni actively by organising yearly meet-ups and inviting guest lectures. Also, more recently, the financial crunch has enabled the widespread establishment of student endowment funds.

More importantly, since alumni know both their HIEi and the Industry, their feedback is of utmost importance. The alumni rated the taught courses as of high quality and appropriate for learning (Figure 27). The consensus towards quality and relevance of courses towards learning stems from the fact that the curriculum throughout the country is uniform. Furthermore, each course is mapped to course learning outcomes which are further mapped to programme learning outcomes. The programme learning outcomes are uniform throughout the country and consistent with the Washington Accord. Hence, the high level of confidence in the curriculum is justified.

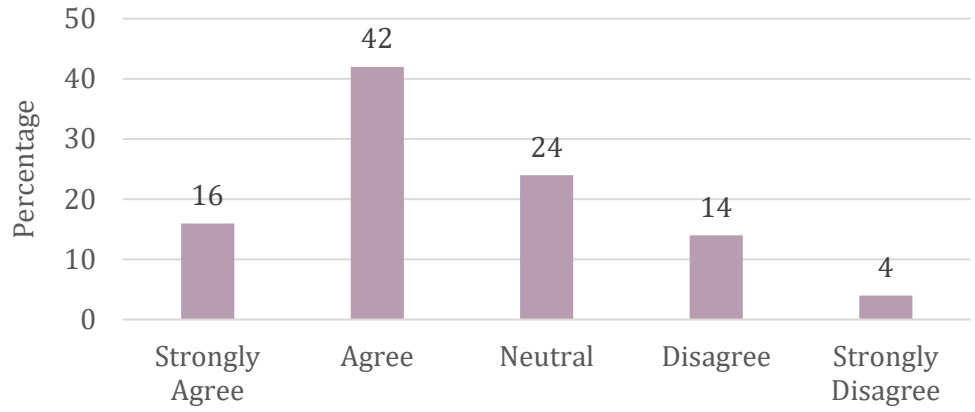
Figure 27: The Quality and Appropriateness of the Courses Taught



Source: Authors' calculations.

The level of confidence decreased slightly for the qualification and knowledge of teachers (Figure 28). As mentioned, the curriculum throughout the country is standardised but there is no mechanism to check the quality of teachers, rank their pedagogical skills, and incentivise them towards teaching. The faculty educated at highly-ranked institutions gets the same pay as the faculty educated at low-ranked institutions.

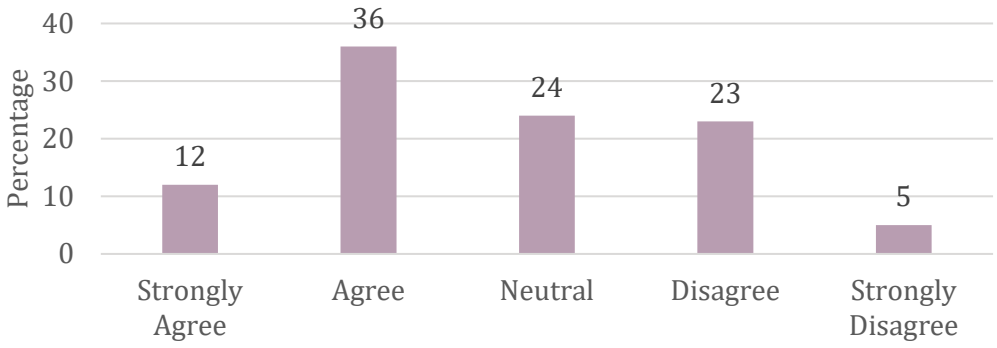
Figure 28: Qualification and Knowledge of Teachers of all Subjects



Source: Authors' calculations.

There is no mechanism to rank the faculty being inducted nor is there a way to encourage the adoption of the latest teaching techniques and technologies to improve student learning. Instead, the only performance metric is linked to research and that too in particular to the number of publications rather than their quality. Consequently, this is leading towards a plethora of publications coming at the cost of quality teaching. This problem though is present throughout the education system; it is more pronounced in engineering where attention to psychomotor (commonly called skills) needs to be prioritised. The incentivisation of churning out publications has reduced the effort faculty puts into the methods/practices. Hence, there is a dramatic reduction in confidence in teaching methods compared to courses and the quality of teachers (Figure 29). As regards teaching methods, a higher proportion of alumni disagreed with teaching practices.

Figure 29: Satisfaction with Faculty Members' Teaching Methods/Practices

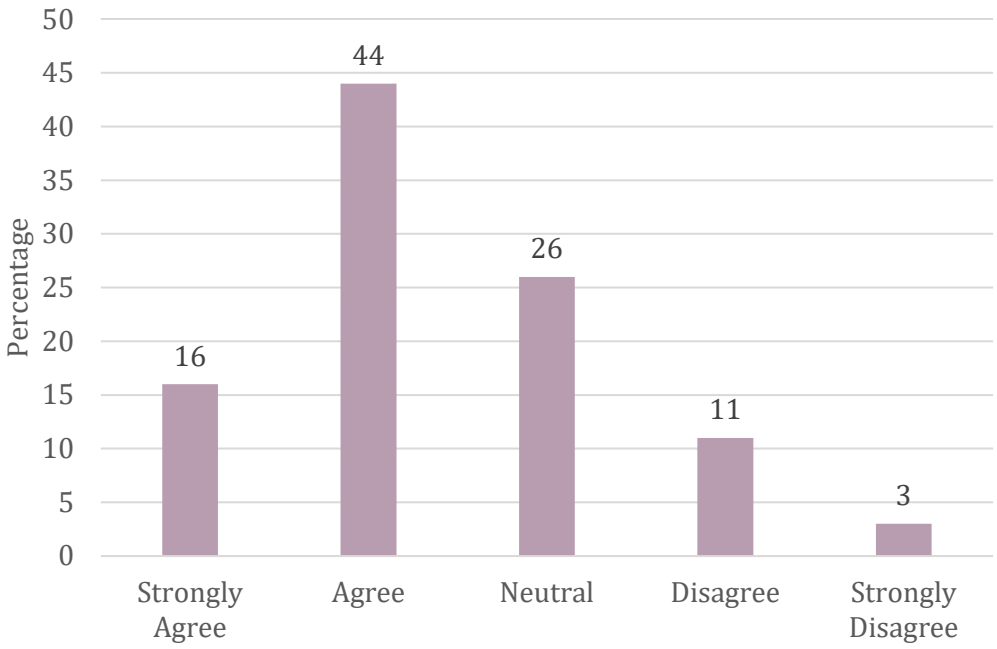


Source: Authors' calculations.

The decrease in the confidence in practices used can be increased with proper training and the purchase of equipment which engages students. This goal is achievable as the faculty attitude is conducive towards learning (Figure 30). Having the right attitude is the single most important factor for the adoption of new methods.

The facilities at the HEIs received mixed responses (Figure 31), where majority agreed that facilities were adequate but a significant minority also disagreed. The inadequacy of the lab facilities is the root cause identified in the reviews by the Pakistan Engineering Council. The most common observation is to limit the number of students per workstation to 2 to 3. This proposed solution is impractical as one non-computing workstation costs from a couple to several million rupees. This requires ingenious ways to increase and build capacity. The use of hands-on complex engineering problems and problem-based learning can help achieve this goal. These complex engineering problems and problem-based learning need to be completed during the time of the class. For this to be successful, the institution needs to provide a toolbox to aid project completion. Given the current financial crunch, student-led hands-on projects will not only increase student psychomotor activity but will also build institutional capacity.

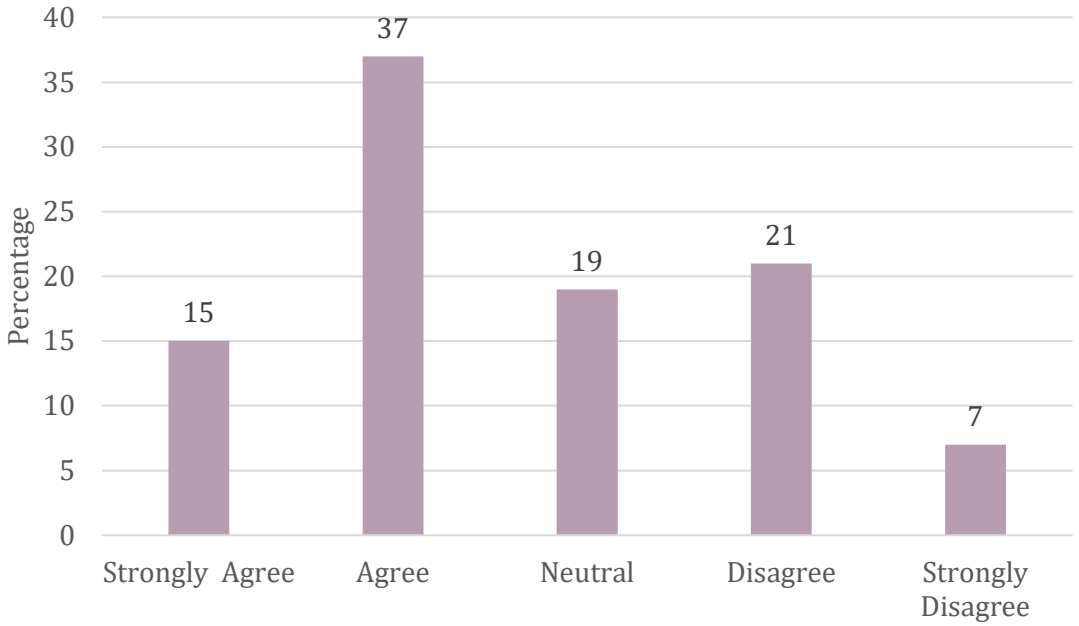
Figure 30: Faculty's Attitude Towards Learning



Source: Authors' calculations.

The capacity building to aid students can be achieved as the HEI environment is conducive for learning (Figure 31). This overall positive attitude stems from the large foreign-qualified faculty present in the engineering HEIs throughout the province. The foreign-qualified faculty brings together best practices from all over the world. The Higher Education Commission, with its various faculty development programmes, has developed significant faculty having foreign experience.

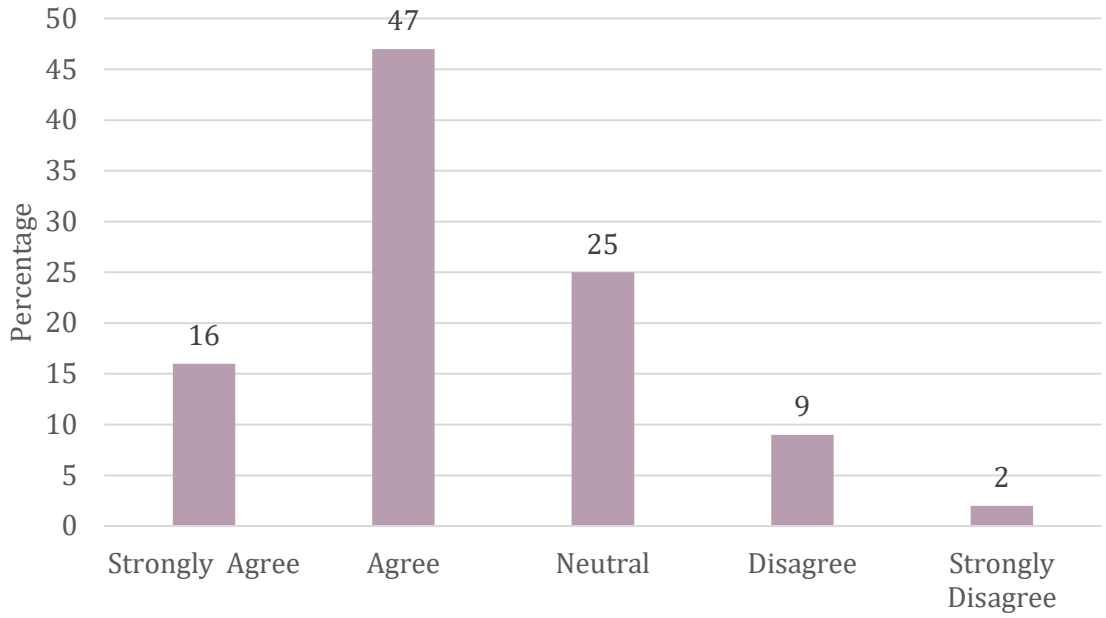
Figure 31: Adequacy of Facilities, Resources, and Scientific Labs Per the Requirements of Each Subject and Market Demand



Source: Authors' calculations.

The major shortcoming identified by the industry was the lack of skills of the graduate engineers (Figure 33). This is linked to the reduced weight of psychomotor skills in undergraduate education. For engineers, the ratio of cognitive and psychomotor skills is 70 to 30, which, in principle, shows that for an engineer the ability to think and design is more important than the ability to execute. Another thing that needs to be fixed is the quality of assessment and an increase in its weight. Given the wide variety of examination instruments, such as complex engineering problems, problem-based learning, and open-ended labs, it is safe to say that the increased complexity of these instruments can help produce engineering graduates with a high level of hands-on skills.

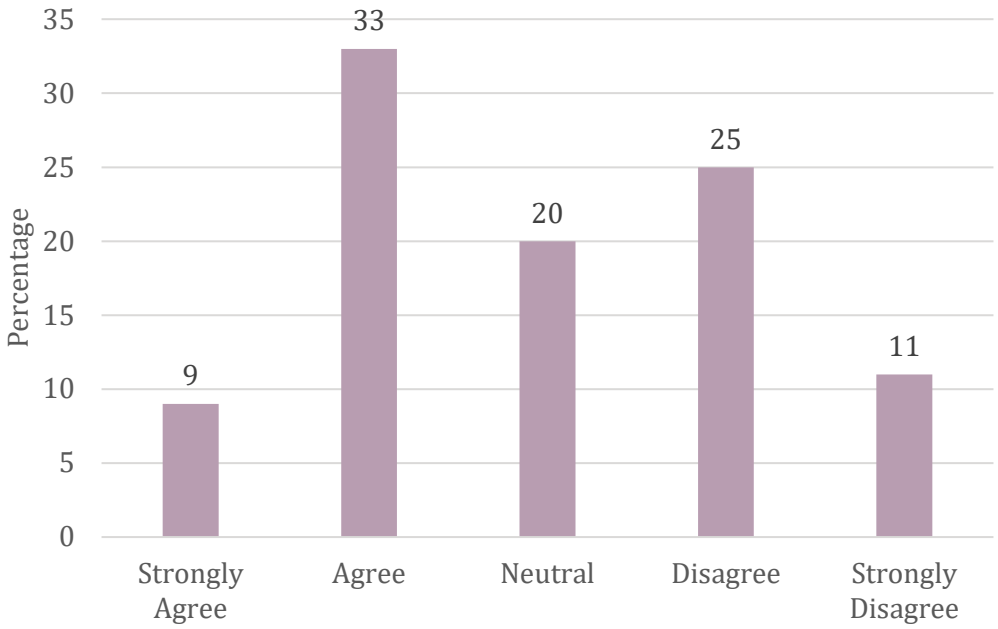
Figure 32: Overall HEI Environment for Learning



Source: Authors' calculations.

The curriculum providing adequate skills received the maximum negative feedback highlighting the underlying problem of lack of psychomotor activities Figure 33. To achieve this would require a systematic approach to increase the engagement of students in psychomotor activities. Furthermore, the industry can be involved in designing projects which encourage hands-on activities.

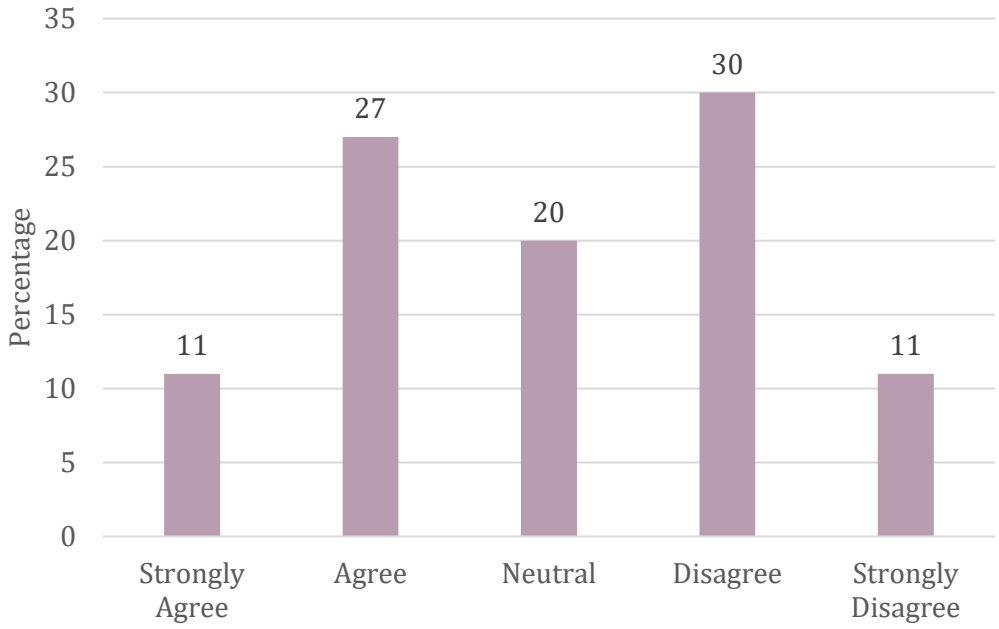
Figure 33: Education Design/Curriculum's Balance Between Theory and Practical/Hands-On Work



Source: Authors' calculations.

Apart from hands-on activity another area where graduates are found wanting are lack of soft skills. Figure 34 shows the skills that are most commonly needed, such as teamwork, time management, problem-solving, and verbal communication, were the most popular. These skills are more readily acquired in an extracurricular or co-curricular setting than during an instructional letter. Furthermore, these soft skills need to be incorporated into student development from a much earlier stage. It has been observed that students doing well in this area had already acquired these skills by the time they reached university. Teamwork, being the highest-rated skill, is opposite to the conventional method of solving a problem in which a question is given having only one possible solution and is to be solved in isolation. In a classroom setting, we can encourage collaborative learning by forming groups and asking questions with multiple solutions. This would encourage student-student interaction, collaborative learning and division of work.

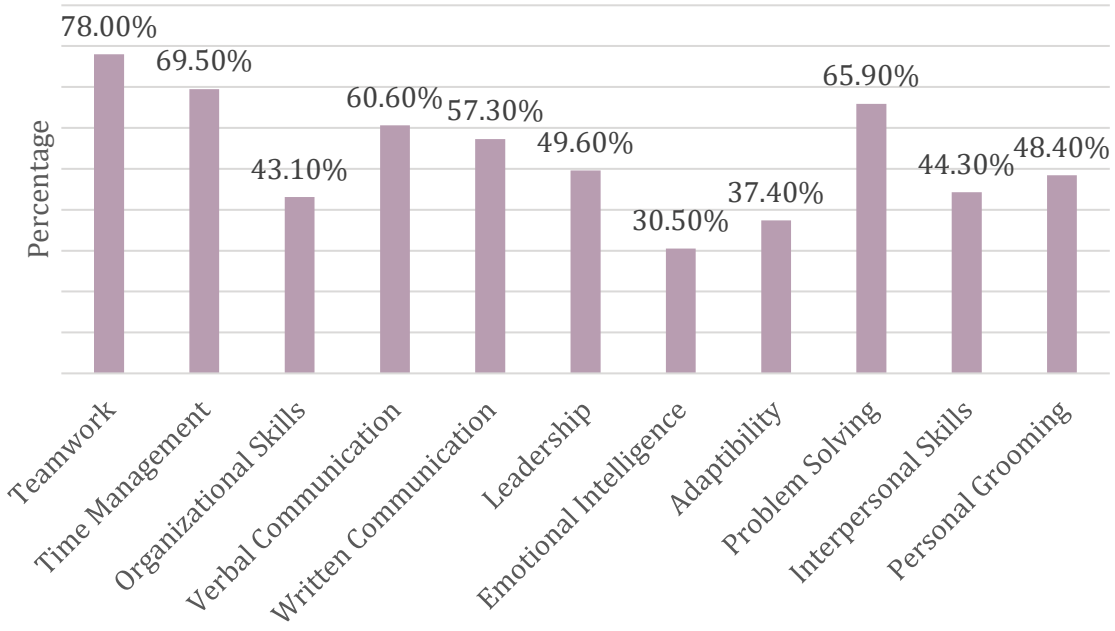
Figure 34: Curriculum/Education's Adequacy for a Competitive Market



Source: Authors' calculations.

One soft skill that is considered very important is proficiency in the English language, which is also evident from responses (Figure 36).

Figure 35: Necessary Skills for Learning Experience in HEI



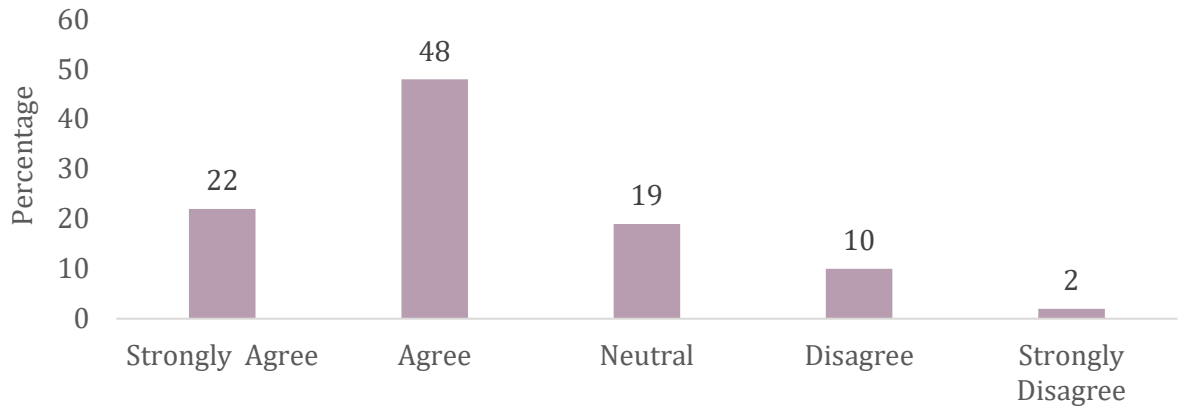
Source: Authors' calculations.

Qualitative interviews revealed that employers look for candidates with effective communication and proficiency in the English language.

To help improve soft skills, departments organise several training sessions in which CV-making is the most popular skill as shown in Figure 37. Reaching out to industry, using social media, to increase job prospects and the ability to hunt for jobs need to be improved dramatically as only close to one-third of graduates received guidance.

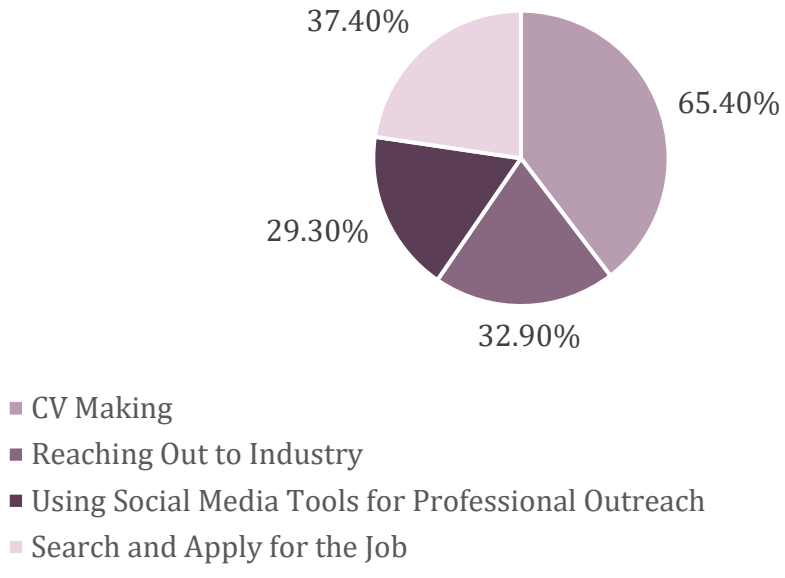
During the quantitative survey and qualitative interviews, we learned that perception of the university plays a very important role in job placement. The traditional and well- established engineering institutes find job search to be much easier, which is a further distinguishing factor between general and specialised institutes where the latter enjoy much better prospects.

Figure 36: The Role of Proficiency in the English Language in Graduates' Success/Prospects for Jobs



Source: Authors' calculations.

Figure 37: Guidance at the HEI on Professional Skills



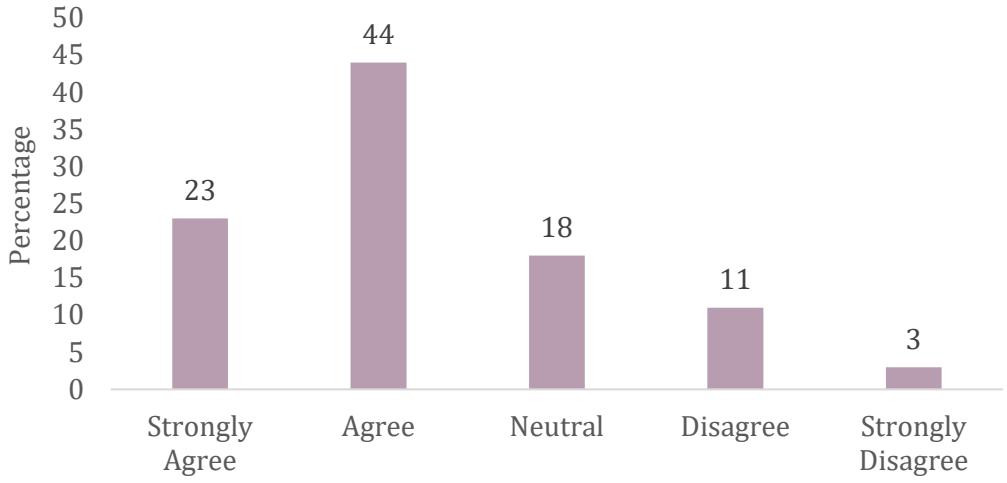
Source: Authors' calculations.

The factors beyond one's control are family background and socio-economic status. The overwhelming majority agreed that these two factors are pivotal for job placement (Figure 39). Given the dearth of job opportunities, such factors become all the more crucial.

HEIs have many societies that are actively involved in organising activities throughout the calendar year, but only a handful of students take part in the societies with full dedication. The survey shows that students are encouraged (Figure 41), but this needs to be taken a step further with extracurricular or co-curricular achievements being celebrated at the departmental level.

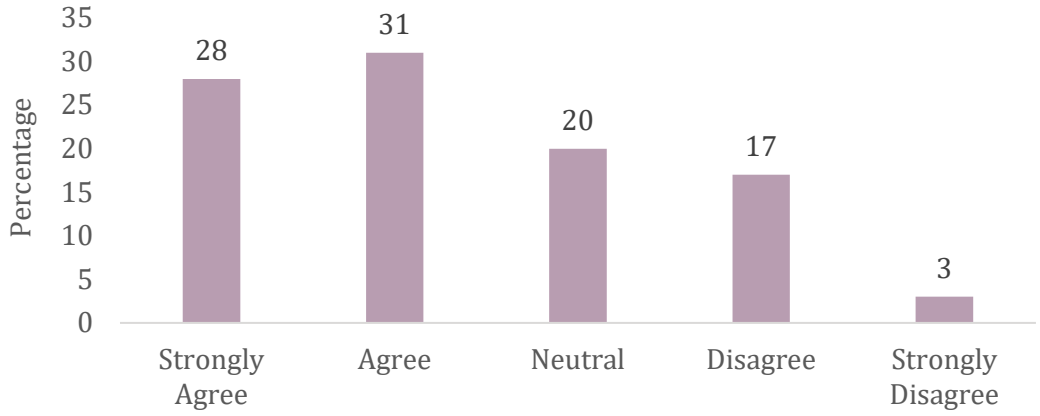
Industrial exposure through internships is an excellent way to make students learn the requirements of work. Internships are compulsory for every student and are part of the graduation requirements. Industrial visits/tours are also a way to learn about the industry and meet employers to discuss students' suitability. Problem-based learning is where the faculty engages with industry, learns about their problems, and forms groups where students solve the problems. Regular career fairs are the least frequent (Figure 42) and need to be organised more frequently for better graduate placement.

Figure 38: The Role of Overall Perception of the Institute's Role in Job Placement



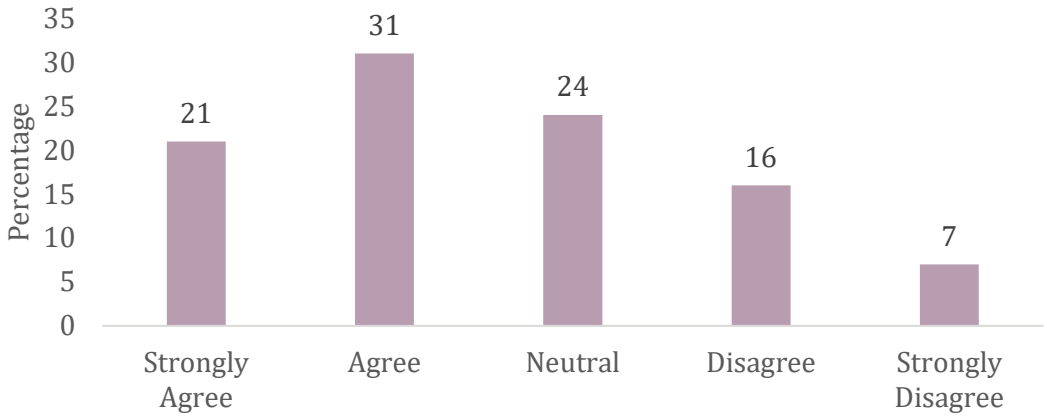
Source: Authors' calculations.

Figure 39: The Role of Family Background and Socioeconomic Status of a Student role in Getting a Good Job



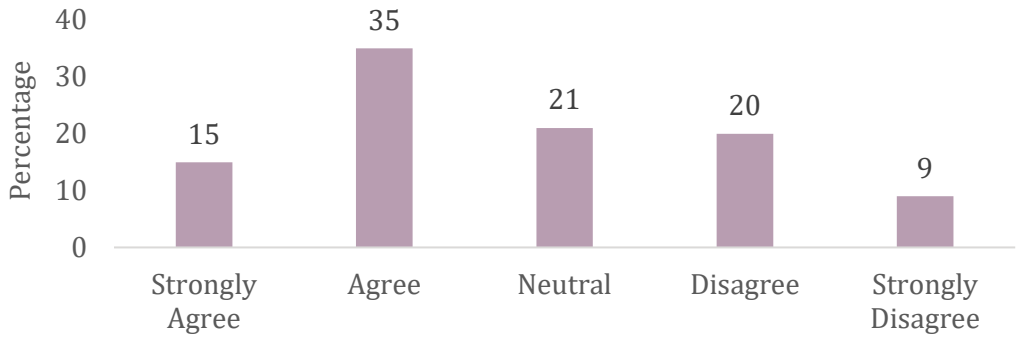
Source: Authors' calculations.

Figure 40: Encouragement by the Society of Women Engineers' Participation in the Labor Force



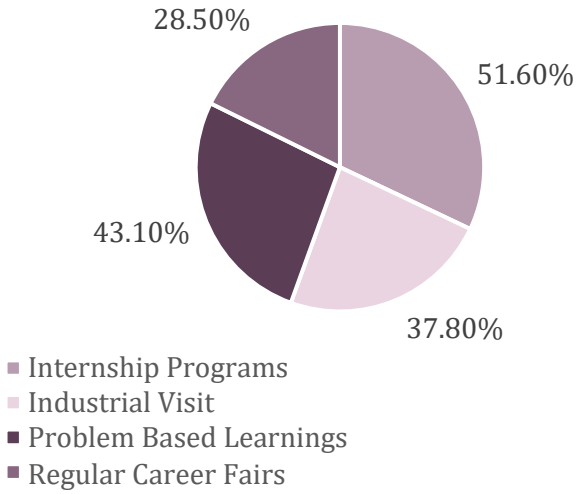
Source: Authors' calculations.

Figure 41: Encouragement of Students at HEIs to Participate in Extracurricular/Co-curricular Activities



Source: Authors' calculations.

Figure 42: Provision of Practical Exposure to the Industry/Professional Environment and Corporate Dynamics

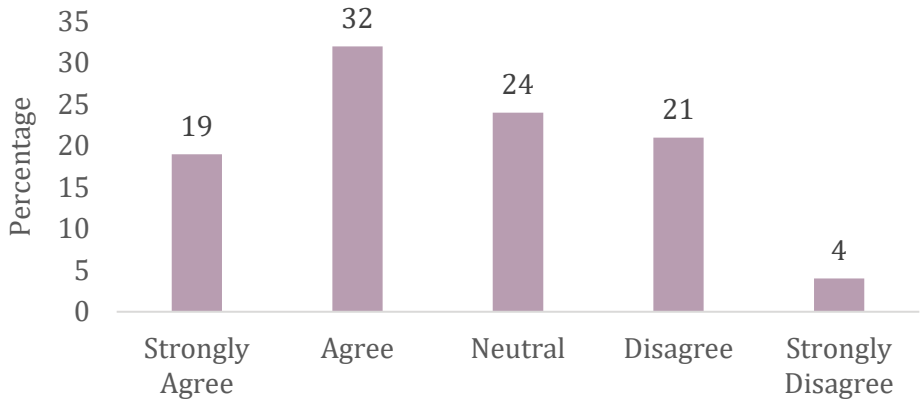


Source: Authors' calculations.

Now comes the most important part of the problem, i.e., the availability of jobs (Figure 43).

The recent global recession and our non-industrial economy have significantly reduced the number of jobs for engineers. Engineering Jobs are linked with transforming various factors of production into finished goods. The value of finished goods is far more than the raw material. Focusing all our attention towards making finished goods will significantly boost our economy, create opportunities for the skilled labour force and have a trickle-down effect on all other areas. Meanwhile, engineering programmes should only be opened/expanded if there is a market need. Student placement should be monitored to observe the absorption of engineering graduates into the economy.

Figure 43: Availability of Jobs in the Industry



Source: Authors' calculations.

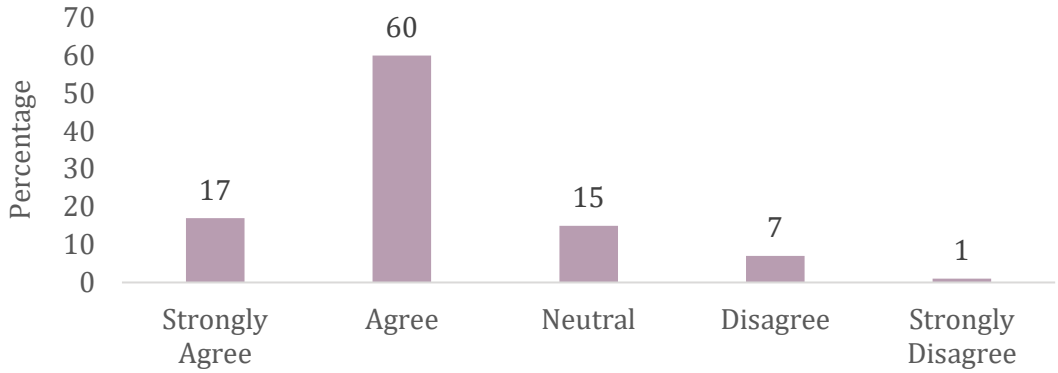
Senior Year Students

Students are a vital link between the business world and academic institutions. They act as a dynamic conduit, promoting the sharing of information, abilities, and practical experiences. As students pursue their academic goals, they gain knowledge of the most recent market trends and requirements, which prepares them to become future professionals. They simultaneously return to their educational institutions with new perspectives, creative ideas, and a desire for real-world application. Both parties gain from this interaction: businesses can access a pool of up-and-coming talent, and universities can modify their curricula to better suit the shifting demands of the labour market.

Students play a key role in bridging the gap between theory and practice in this cooperative relationship, increasing the overall effectiveness and relevance of education in our constantly changing world. It is the responsibility of students to actively engage with the course materials, ask questions, and seek clarification. By establishing goals, effectively managing their time, and exhibiting the discipline necessary to acquire knowledge and skills, they play a crucial role in their learning. Students can also contribute to a positive learning environment by working with peers, exchanging ideas, and giving teachers insightful feedback. Since students are ultimately co-creators of their educational experiences rather than merely recipients of knowledge, their dedication and enthusiasm are essential to a fruitful learning process. To improve the curriculum of a particular institution and the calibre of the courses offered, student feedback is of the utmost importance. Students typically responded favourably and indicated their agreement through evaluations when they found the courses to be of appropriate quality and meeting high standards, as shown in Figure 80.

It is important to acknowledge that some students might have doubts or differences, though. Despite being a minority, these dissenting opinions provided insightful criticism and opportunities for development. Their feedback can act as a motivation for implementing beneficial changes, fixing any flaws, and persistently pursuing educational excellence. The result is a more responsive and adaptable educational ecosystem that values all aspects of student input, whether positive or negative. It is pertinent to mention that confidence in courses taught decreased which is evident from the alumni survey. Teachers' expertise and credentials are priceless because they provide the framework for students' learning experiences. A course taught by a highly qualified instructor can significantly improve a student's learning abilities and have a profound effect on their cognitive development.

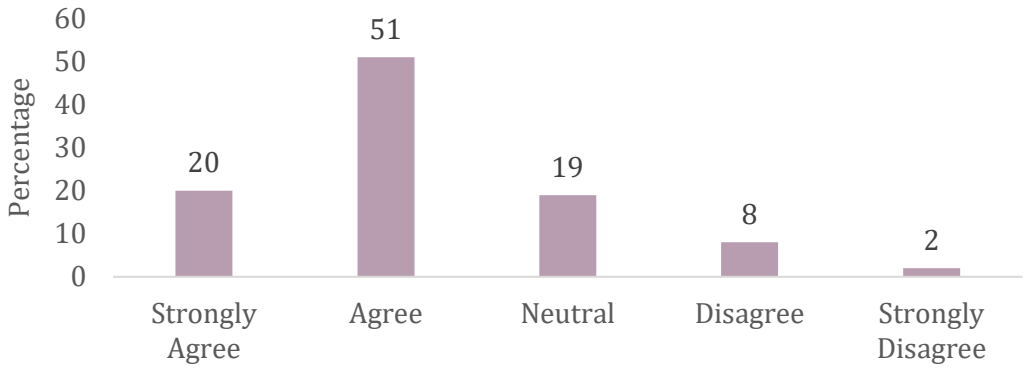
Figure 44: Quality and Appropriateness of the Courses Taught



Source: Authors' calculations.

It is clear from Figure 45 that the majority of students approved of their teachers' subject- expertise and credentials. This agreement is evidence of the teacher's skill and ability to foster an environment that is favourable to learning effectively. The foundation of any educational system is teaching methods or pedagogical approaches. These strategies and techniques cover a wide range of what educators use to teach students, encourage critical thinking, and instil a love of learning in them. The choice of teaching strategies can have a big impact on how well students understand, engage, and retain information. Effective teaching techniques not only make difficult subjects more understandable but also take into account different learning preferences, giving every student the chance to succeed academically. In this case as well, the confidence in teachers decreased as the students transitioned to alumni.

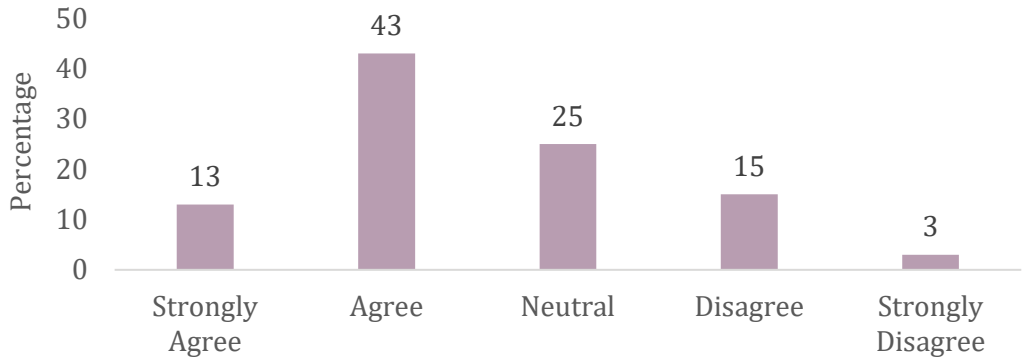
Figure 45: Qualifications and Knowledge of the Teachers of All Subjects



Source: Authors' calculations.

As depicted in Figure 46, many students, especially in the engineering field, expressed dissatisfaction with the teaching strategies used by their professors. This discrepancy results from the fact that students frequently evaluate their teachers' effectiveness using research-based standards rather than their ability to deliver captivating lectures. This pervasive sentiment among different educational institutions emphasises the need for a system of education to set up procedures for more thorough teacher evaluation. It is crucial to implement metrics that prioritise educators' teaching abilities as well as how much they contribute to research. Workshops and training sessions should be regularly held to improve the teaching abilities of instructors to close this gap.

Figure 46: Satisfaction with Faculty Members' Teaching Methods/Practices

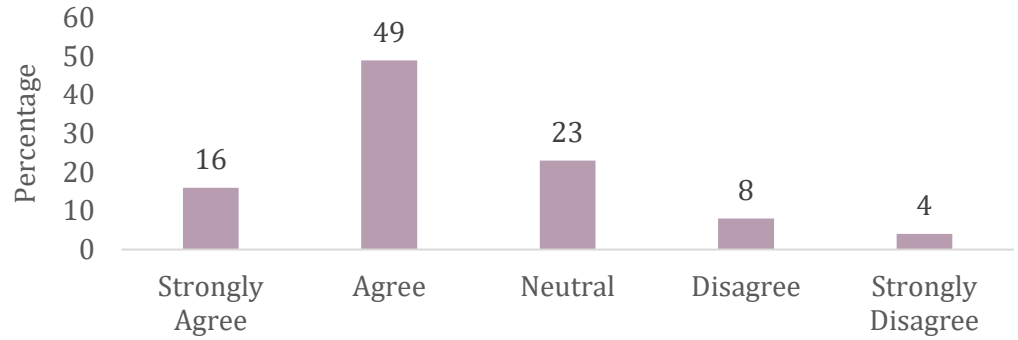


Source: Authors' calculations.

The crucial part that teaching staff attitudes play in influencing the learning experience is highlighted in Figure 47. It demonstrates how strongly students agree that teachers' attitudes have an enormous impact on their self-confidence and active participation in class discussions. Teachers who are upbeat and encouraging, help to create a welcoming and inspiring learning environment. In turn, this encourages students to freely express their ideas, ask questions, and participate actively in classroom discussions because they feel respected and valued. On the other hand, when teaching staff act negatively or indifferently, it hinders student engagement and negatively impacts their overall learning experience.

Gaining practical knowledge is the top priority for engineering students, which calls for access to crucial facilities and resources for subject demonstrations as well as well-equipped laboratories and a supportive learning environment. Figure 48 shows that students' opinions on facilities and lab resources in higher education institutions were somewhat divided, with the majority of them agreeing and a sizeable minority disagreeing. This difference in opinion signals for the education department to concentrate on improving the real-world learning environment. Implementing open-ended labs, as stressed in the curriculum by the Pakistan Engineering Council (PEC), is one practical way to address this disparity.

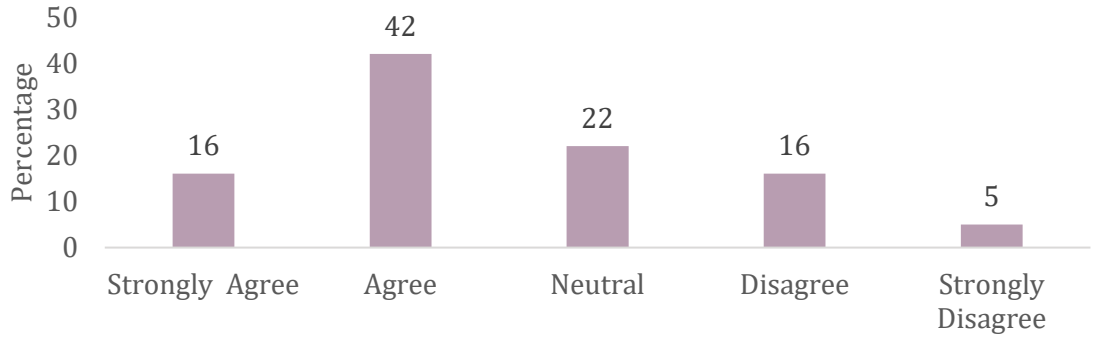
Figure 47: Teaching Staff's Attitude to Learning



Source: Authors' calculations.

These labs could be an essential step in giving students practical experience, encouraging a more hands-on and immersive learning environment, and better integration of educational facilities with the requirements and expectations of engineering students. It is clear from Figure 48 that students' academic paths and personal development are greatly influenced by the general environment at their respective universities. Most students agreed with the current situation, stating that their universities offered a nurturing and supportive environment for intellectual and personal growth. They emphasised the value of teamwork, analytical thinking, and learning crucial life skills like time management, communication, and problem-solving. They also recognised the value of the supportive university community, cultural diversity, and extracurricular activities in fostering a well-rounded educational experience.

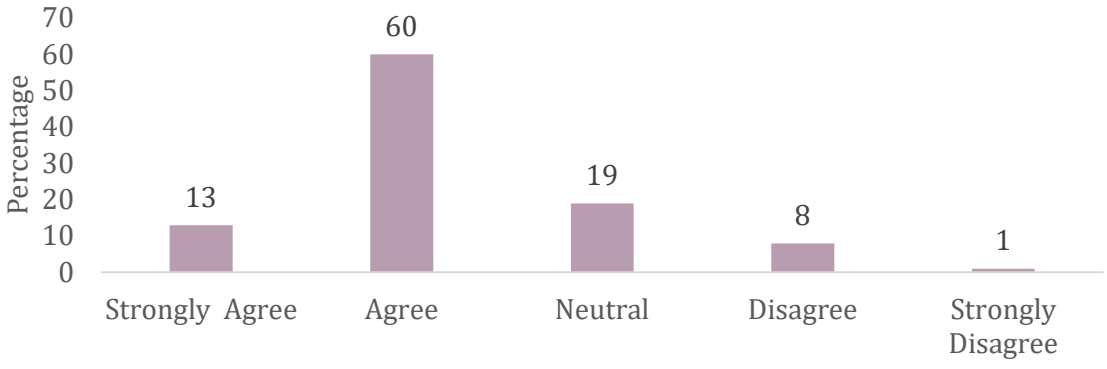
Figure 48: Adequacy of the Facilities, Resources, and Scientific Labs Per the Requirement of Each Subject and Market Demand



Source: Authors' calculations.

It is crucial to remember that there are always differing viewpoints and do not entirely concur with the culture that prevails at universities. This range of opinions emphasises the necessity of constant attention and development to meet the various needs and expectations of students. Universities can continue to develop and offer a well-rounded educational experience that is in line with the aspirations of students by paying attention to and addressing the concerns of these students. There are a variety of student opinions about how to integrate theoretical knowledge and practical application, as shown in Figure 50. A sizable majority of responses were favourable, acknowledging the significance of this balance for future achievement. A smaller percentage of students, though, were more positive about the way things were going in education.

Figure 49: Conduciveness of the Overall University/HEI Environment to Learning

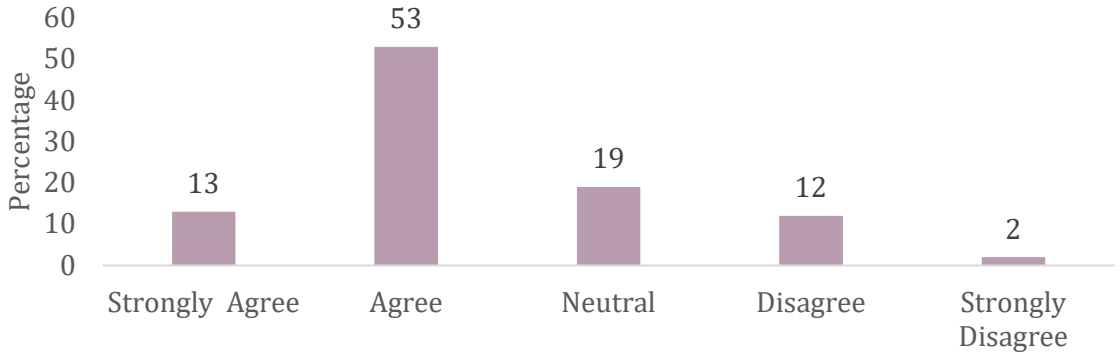


Source: Authors' calculations.

Implementing problem-based learning can be a strategic response to this difference in viewpoints and ensure a more inclusive approach. Students have the chance to actively find and create the ideal balance between real-world experiments and theoretical frameworks through problem-based learning. This method encourages students to tackle actual problems, which promotes a deeper comprehension of theory and its real-world applications. Adopting problem-based learning enables educational institutions to better meet the diverse learning styles and requirements of their students, ultimately fostering the development of a more efficient and comprehensive educational system. Figure 51 makes it clear that students expressed dissatisfaction with the education or curriculum being provided by the HEIs, specifically with regard to how well it aligns with obtaining better job opportunities. Complex engineering problems must be incorporated into accepted engineering practices to address this issue. This tactical change can give students more hands-on learning opportunities that apply to the workplace, bridging the gap between academic learning and the needs of the labour market. Educational institutions can better prepare students for the competitive job market by incorporating real-world challenges and challenging problem-solving scenarios, ensuring that their skills and knowledge are directly applicable to the complexities of their chosen field. The full range of soft skills is not only necessary but also desirable for students who want to succeed in the competitive job market, as shown in Figure 52.

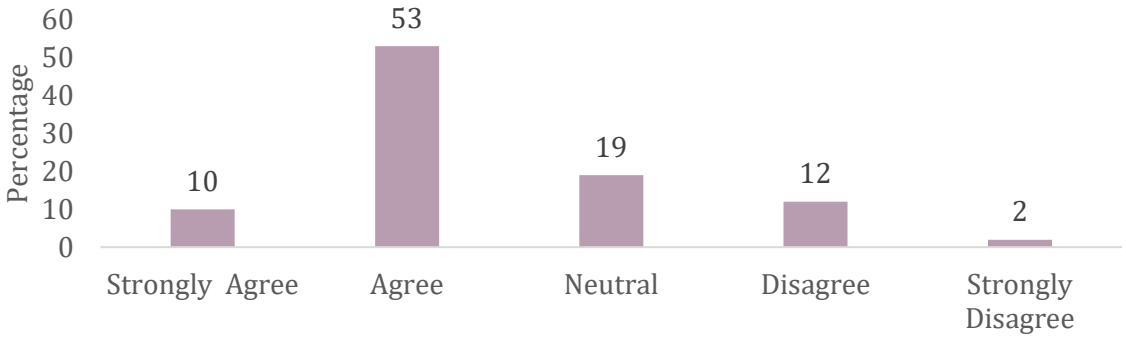
Teamwork is the most important of these essential skills, followed closely by efficient time management and quick problem-solving techniques. Universities must incorporate thorough soft skills training programs into their curriculum to provide students with these crucial skills. These programs would give students the chance to hone and practice these skills, preparing them for the demands of the modern workplace. Such instruction helps students succeed in a variety of professional contexts by promoting both their overall personal and professional development and improving their competitiveness in the job market.

Figure 50: Balance Between Theory and Practical/Hands-On Work in Education Design/Curriculum



Source: Authors' calculations.

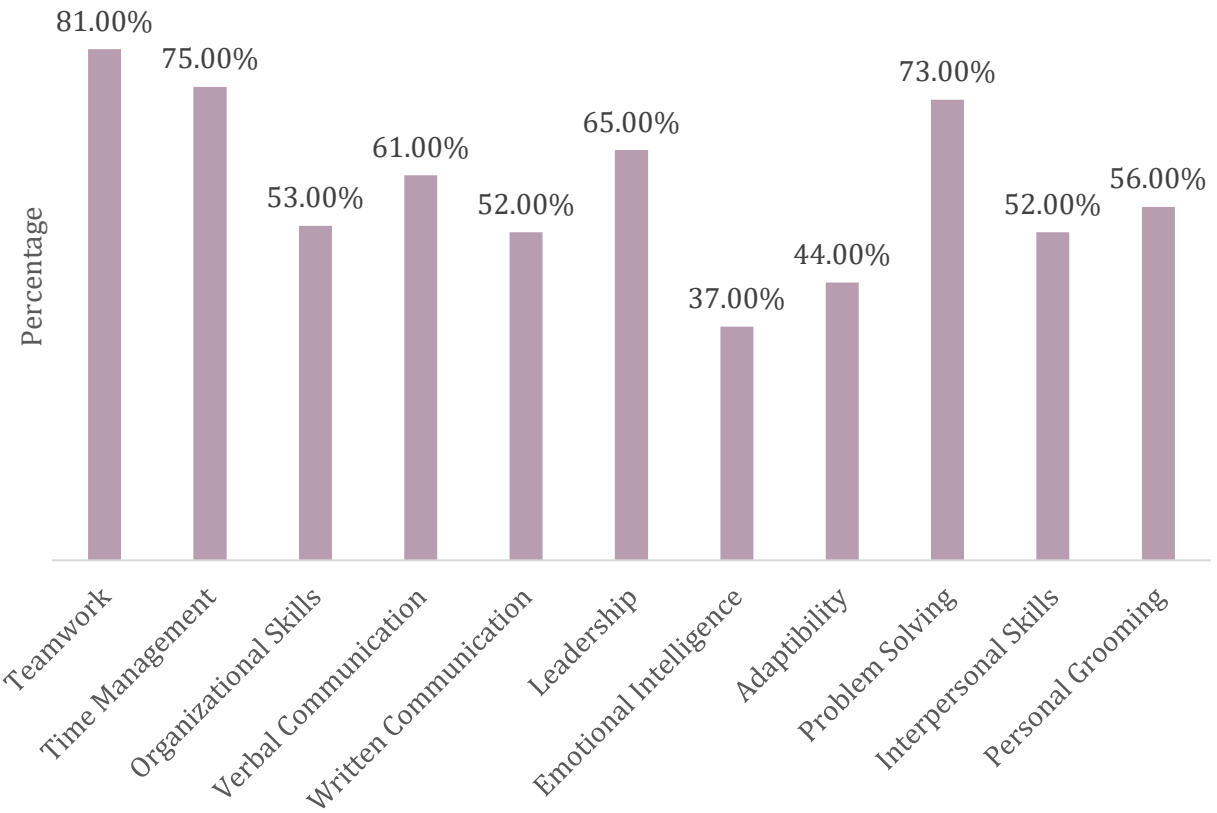
Figure 51: Suitability/Adequacy of Curriculum/Education for a Competitive Job Market



Source: Authors' calculations.

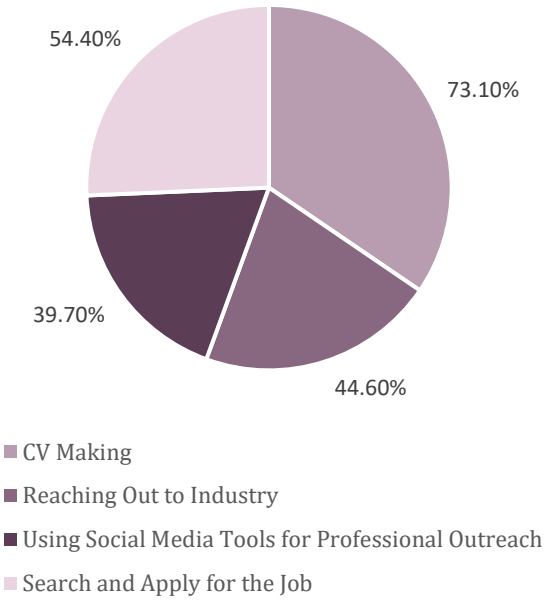
In essence, universities have to give their students access to these crucial soft skills training opportunities to prepare them for success in the modern job market. Figure 53 sheds light on whether educational institutions provide students with timely and thorough guidance as they develop crucial professional skills. The data indicates that, to a significant extent, students received adequate guidance from their institutions to develop these essential skills. This advice covers writing compelling CVs, connecting with businesses and professionals successfully, using social media as a job search tool, and honing techniques for finding and applying to the best job openings. It emphasises the significance of HEIs in cultivating practical skills that are essential for success in today's competitive job market in addition to academic knowledge. Students are well-prepared to confidently navigate their career paths thanks to this proactive approach. Along with their commitment to education, educational institutions have a serious duty to support extracurricular activities because they are a distinctive feature of higher education. These institutions have a responsibility to give students many opportunities to participate in extracurricular activities while highlighting how important these activities are for individual development. Figure 54 shows that the vast majority of students not only strongly agreed that extracurricular activities were important, but also acknowledged that their educational journey actively encouraged them to take part in such activities for the improvement of their general well-being. This demonstrates the knowledge that education transcends the classroom and fosters holistic development that includes physical health, social interaction, and personal enrichment.

Figure 52: Necessary Soft Skills That are a Part of Learning Experience in Universities/HEIs



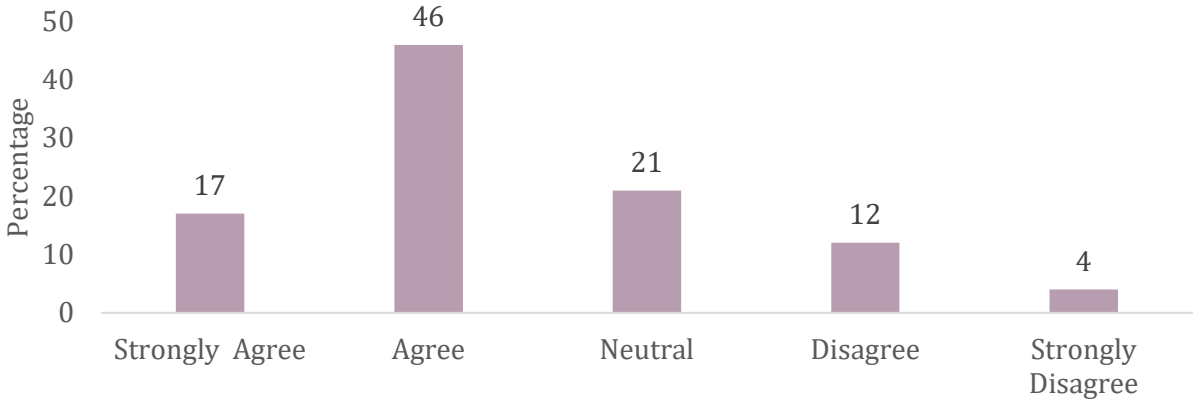
Source: Authors' calculations.

Figure 53: Guidance Provided by Universities/HEIs for Professional Skills



Source: Authors' calculations.

Figure 54: Encouragement of Students at the University/HEI to Participate in Extracurricular/Co-curricular Activities.



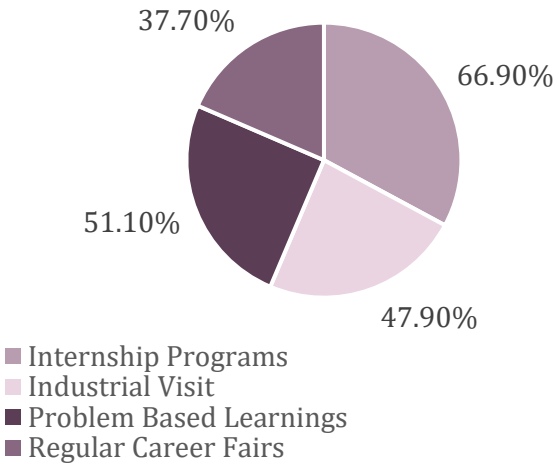
Source: Authors' calculations.

Figure 55 illustrates how engineering universities are proactively enhancing students' professional exposure and job market preparedness. These programmes include industry visits, problem-based learning integrated into the curriculum, internship programmes, and career fairs organised for senior students. Such thorough efforts give students a multifaceted understanding of business operations, allowing them to put their classroom learning to use in real-world situations and gain priceless hands-on experience.

A remarkable opportunity for students to immerse themselves in the working world is provided by the collaboration between educational institutions and organisations like the Pakistan Engineering Council and PAAPAM, which offer six-month paid internships for new engineers. In addition to bridging the gap between academia and industry, this gives graduates the knowledge and exposure they need to succeed in their

professional careers. Together, these programmes help students to improve their employability holistically and significantly in the cutthroat job market. Figure 56 illustrates how, after investing a lot of time and energy in their education, students are becoming more and more aware of the difficulties associated with the job market. The perception that job opportunities might be scarce in the future was shared by a sizeable percentage of students, who agreed with it not just somewhat but strongly. This opinion emphasises how students are becoming increasingly concerned about how their educational investment and the availability of jobs align.

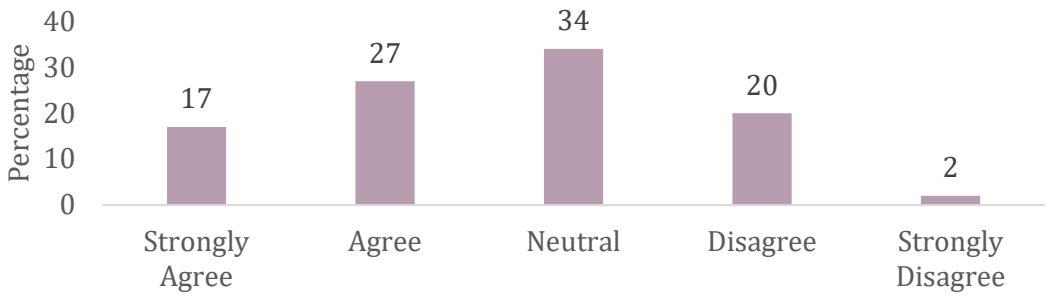
Figure 55: Provision of Practical Exposure to Industry/Professional Working Environments and Corporate Dynamics



Source: Authors' calculations.

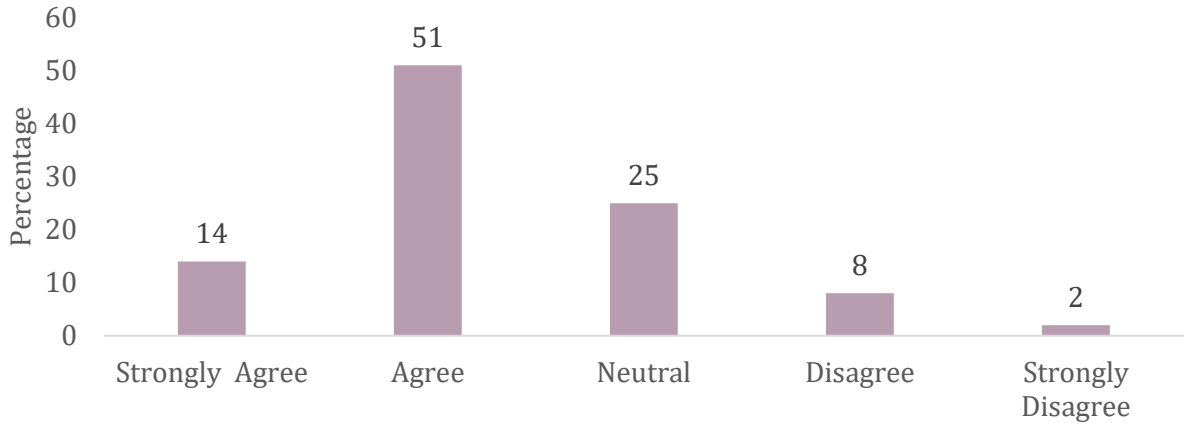
This awareness highlights the need for all-encompassing strategies to address the shifting dynamics of the job market, including economic policies and workforce development programmes. While students are committed to receiving a high-quality education to land their dream jobs, educational institutions and governments must work together to create an environment that promotes innovation, job creation, and economic growth. In this way, it will be possible to meet students' aspirations by providing them with a variety of opportunities for fulfilling employment in the future. Students frequently place a strong emphasis on the reputation of HEIs as a determining factor in their prospects in the job market, sometimes more so than their abilities and efforts, as shown in Figure 57. It is imperative to change this perception by incorporating lessons into the curriculum that highlight the value of abilities and individual efforts in landing a job.

Figure 56: Non-Availability of Jobs in Market/Industry



Source: Authors' calculations.

Figure 57: Role of Overall Perception and Reputation of an Institute in Getting a Job Versus Knowledge and Skill of a Graduate

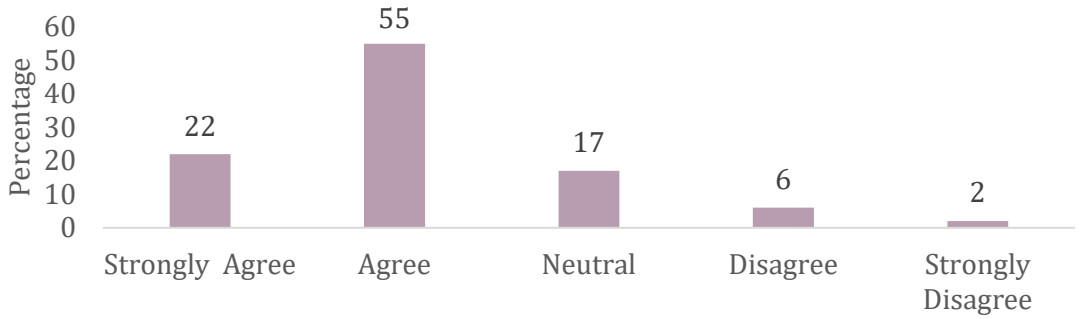


Source: Authors' calculations.

Figure 58 shows that not only for their current situations but also for their future endeavours, students overwhelmingly understand the critical importance of having a strong command of English. They all concurred wholeheartedly that being fluent in English is a crucial skill that would consistently be advantageous to them, ensuring their readiness and competitiveness in both their current endeavours and any potential future opportunities. This sentiment emphasises the ongoing importance of English language proficiency in today's globalised world where effective cross-border communication is a crucial component of career success and personal development. Figure 59 shows that although students are aware of the potential impact that having a supportive family environment may have on their early employment prospects, they also understand that educational institutions have a duty to mentor and provide the best opportunities for all students regardless of their background. While having family support can give students a temporary advantage, institutions are essential in ensuring that all students have access to the tools, opportunities, and resources they need to succeed in the job market in the long run. This emphasises how crucial it is for all students to have equal access to high-quality education and support systems to level the playing field.

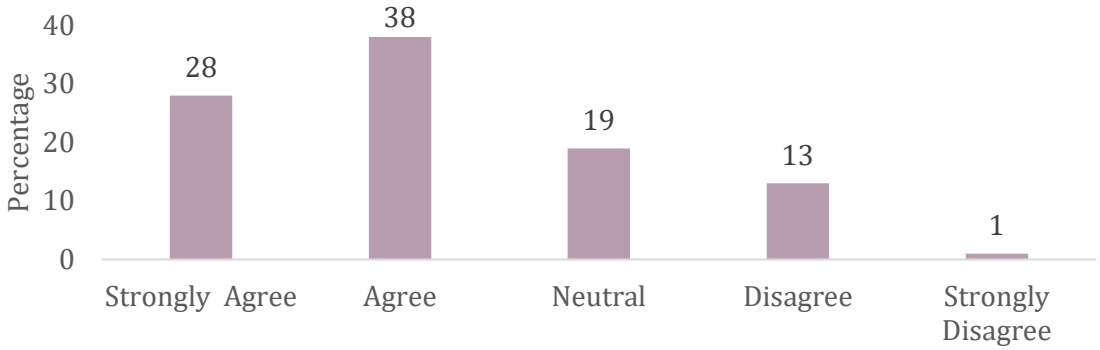
The need for a change in societal attitudes and norms regarding women's roles in engineering is highlighted in Figure 60. Women are currently not sufficiently supported and accepted in the engineering field in terms of employment opportunities. Society must understand that engineering encompasses a wide range of domains that go far beyond typical labour-intensive roles. It is essential to encourage women to look into managerial positions, teaching positions, and research opportunities in engineering to advance gender diversity and make use of a wider range of skills and viewpoints. Women engineers can advance the field with their distinctive perspectives and creative approaches to problem-solving. To solve this problem, society must make a concerted effort to eliminate gender stereotypes and foster an inclusive culture where women are given equal opportunities and encouragement to pursue careers in engineering. Mentorship programmes and educational initiatives that highlight the variety of career paths available within the engineering profession can help draw in and keep more women, enriching the engineering landscape and paving the way for a more equitable and prosperous future for the field as well as society at large.

Figure 58: Rolf of Students' Command over the English Language in Their Success/Prospects of Jobs



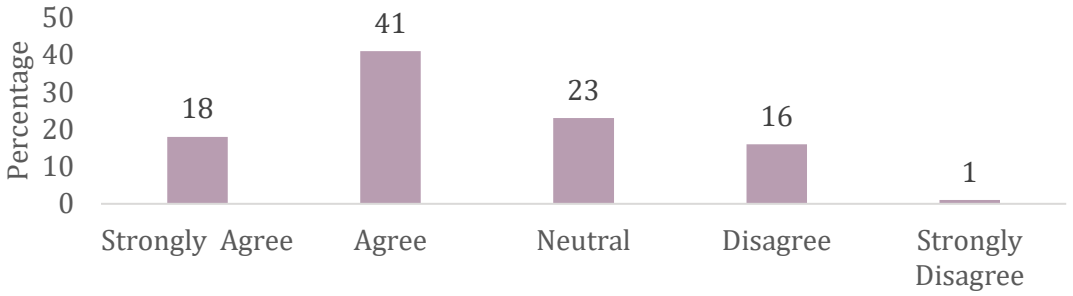
Source: Authors' calculations.

Figure 59: Role of Family Background and Socioeconomic Status of a Student in Getting a Good Job



Source: Authors' calculations.

Figure 60: Society's Encouragement of Women Engineers' Participation in the Labour Force



Source: Authors' calculations.

Faculty

The core of the academic community is made up of faculty members HEIs who fulfil a variety of roles that support the institution's mission to advance knowledge and provide high-quality education. The main duties of these committed professionals are to educate students and foster their intellectual development. To foster a love of learning and critical thinking in their students, they carefully plan courses, deliver lectures and lead discussions. Faculty members actively contribute to the scholarly community outside of the classroom by engaging in research and creative projects that push the limits of human knowledge. They collaborate with peers, publish research papers, run experiments, and improve the academic environment. Faculty members also frequently act as

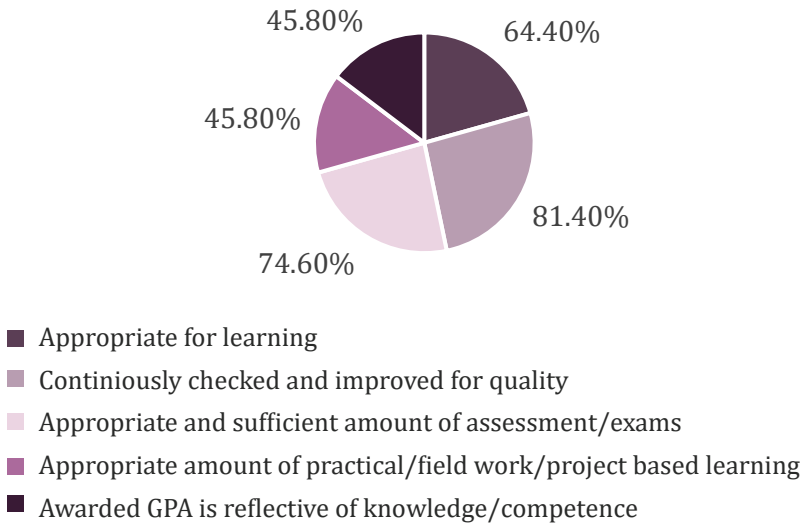
academic advisors and mentors for students, supporting them as they progress through their education and assisting them in choosing their career and academic paths. By serving on committees and in other service capacities, they also take part in the institution's governance and administration.

Faculty's commitment to continuing education guarantees that they stay at the top of their professions. They also contribute to community involvement by imparting their knowledge and insights to a wider audience. In essence, faculty members shape tomorrow's leaders and thinkers by fostering an environment of intellectual growth and discovery within HEIs. Undoubtedly, the courses that faculty members offer are an important indicator of a school's development and its unwavering dedication to providing high-quality education. These courses serve as the foundation upon which students build their knowledge and competencies, so they require constant review and improvement to stay current with both the most recent advancements in their particular fields of study and the rapidly changing modern world.

It is crucial that coursework for engineering students in particular goes beyond purely theoretical foundations to include practical and real-world applications. Students gain a comprehensive understanding of the subject matter by incorporating challenging engineering problems and seamlessly integrating hands-on laboratory experiences. By providing them with the necessary skills and proficiencies to successfully navigate the complexities of their chosen profession, this practical knowledge positions them to make significant contributions to the engineering community as well as to society at large. As a result, the courses created and taught by faculty go beyond simple educational endeavours to symbolise an institution's commitment to producing graduates who are well-rounded, competent, and capable of navigating the complexities of the modern world with confidence and expertise.

Figure 61 shows how faculty members at HEIs are essential to ensuring the ongoing assessment and enhancement of courses. For education to continue to be of the highest calibre, this dedication to meticulous analysis and improvement of course material is essential. In addition to teaching fresh ideas and practical applications, courses are rigorously evaluated throughout the course through exams. The grades students receive often in the form of a Grade Point Average (GPA) serve as an authentic reflection of their comprehension of the material, highlighting the value of continuous assessment and the crucial part it plays in determining student understanding and the calibre of instruction as a whole. A course, programme, or educational experience should explicitly state the specific competencies or learning outcomes that students should have attained by the end. This is known as outcome-based education (OBE). This approach emphasises evaluation and demonstration of learning rather than just focusing on finishing assignments or devoting time to academic activities.

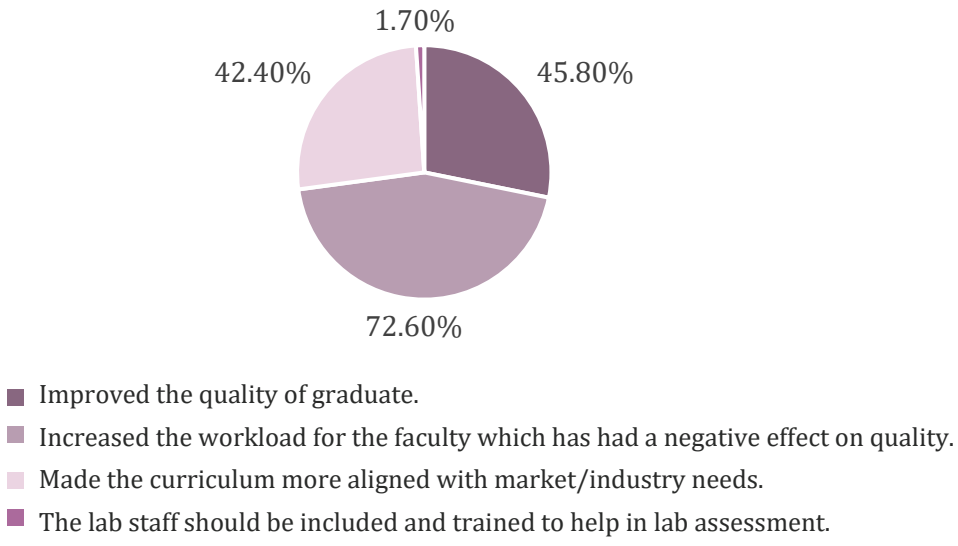
Figure 61: Quality and Appropriateness of the Courses Being Taught for Learning



Source: Authors' calculations.

However, as shown in Figure 62, it is clear that the OBE system's implementation has led to an improvement in graduate engineers' quality and the creation of a top-notch curriculum that is perfectly in line with market demands. However, it has also created significant difficulties for faculty members due to an increase in workload. The quality of education has been negatively impacted by this increased workload, raising concerns about potential adverse effects. Education curricula must strike a balance between theoretical knowledge and practical, hands-on experience to promote more efficient and thorough learning. As shown in Figure 3, there is broad agreement among academics that HEIs have successfully designed curricula that strike this important balance, which will be extremely helpful to students in the future. Notable organisations that have implemented Problem-Based Learning (PBL) methodologies include the Pakistan Engineering Council.

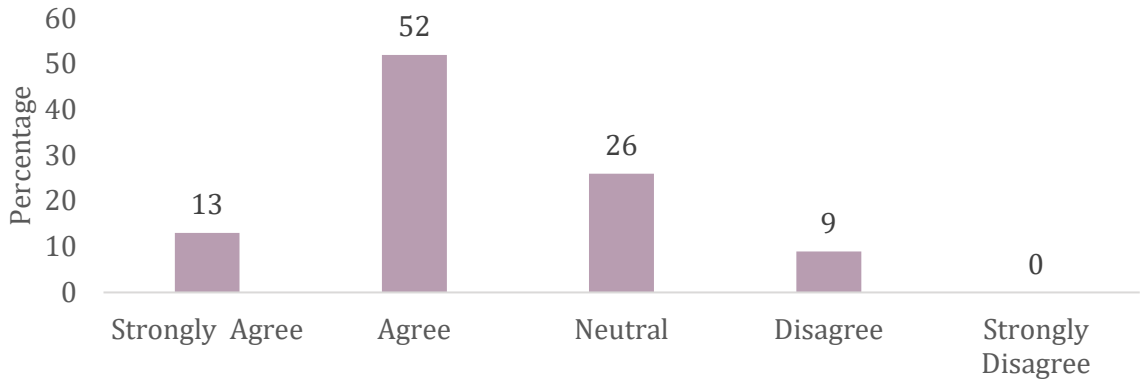
Figure 62: Achievements of the Outcome-Based Education (OBE) System



Source: Authors' calculations.

This strategy demonstrates their dedication to upholding the ideal ratio of theory to real-world application in education. PBL encourages students to actively engage in problem-solving and grapple with real-world issues, highlighting the value of both traditional theoretical learning and practical knowledge. This all-encompassing approach to education ensures that graduates are well-equipped for success by better preparing students for the demands of their respective fields as well as aligning with the changing needs of industries and society at large.

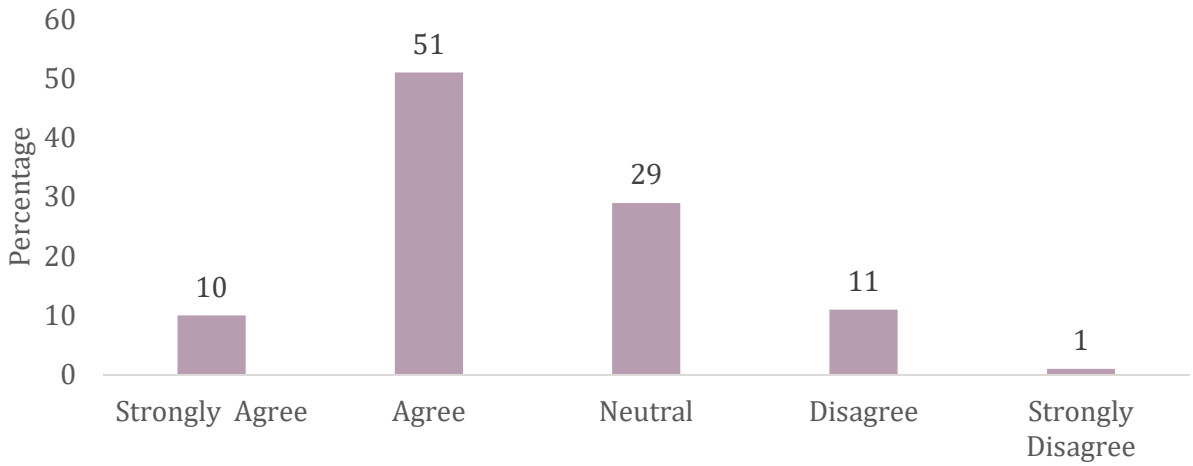
Figure 63: The education design/curriculum provides the right balance between theory and practical/hands-on work



Source: Authors' calculations.

The opinions of faculty members on the suitability of the information provided by educational institutions for preparing students to find employment in a more competitive job market range widely, as shown in Figure 64. There is a notable fraction of faculty members who held a different viewpoint even though a sizeable portion of them strongly agreed that the knowledge provided by institutions was more than enough to prepare students for success in today's intensely competitive job market. These people contended that there had been significant changes in the job market today, particularly in fields like engineering. In contrast to earlier times, it was now characterised by increased competition and changing demands.

Figure 64: Adequacy and Sufficiency of Curriculum/Education for a Competitive Job Market



Source: Authors' calculations.

This difference in opinions emphasises how the employment landscape is changing and how crucial it is to modify educational strategies to meet these changing demands. It highlights the need for educational institutions to continuously review and update their curricula to make sure that students are not only well-versed in fundamental concepts but also flexible and adaptable to deal with the difficulties posed by the fast-paced job market of the modern world. In this setting, the dialogue between academic institutions and faculty plays a bigger role in developing curriculum changes that are better suited to the modern workplace.

As shown in Figure 65, there is a discernible trend among professors to place a strong emphasis on the development of crucial soft skills in students, especially in light of the tightening competition in the job market. It is becoming more and more clear that students must learn and hone skills such as teamwork and problem-solving, both of which are regarded as essential to succeed in this environment of increased competition. Additionally, it is acknowledged that efficient time management is a crucial part of these soft skills, enabling students to succeed in their academic endeavours and future careers. Institutions are proactively addressing this imperative by including frequent in-class activities and workshops aimed at encouraging the adoption and development of these crucial skills. These practical exercises offer students chances to foster teamwork dynamics, improve their problem-solving skills, and hone time management techniques. Institutions prepare students academically and equip them with the practical skills necessary to succeed in the fiercely competitive global job market by integrating these skill-building activities into the educational experience. The dedication of faculty and institutions to producing graduates who are not only knowledgeable in their fields but also possess the adaptable soft skills required for success in a rapidly changing professional landscape is highlighted by this holistic approach to education.

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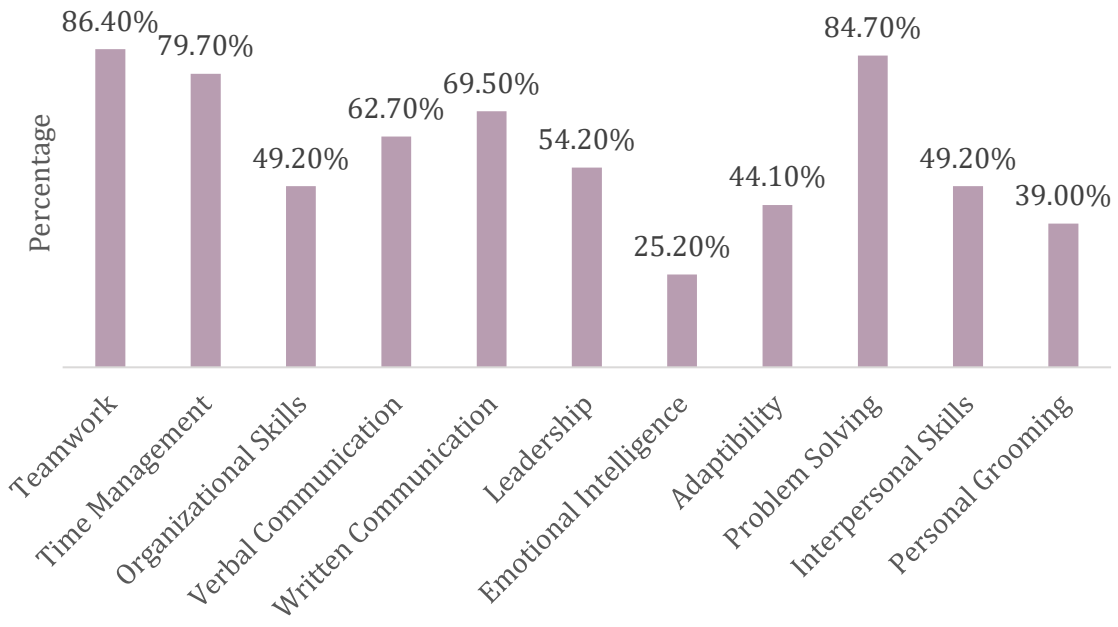
Figure 65: The following soft skills are being imparted to the students

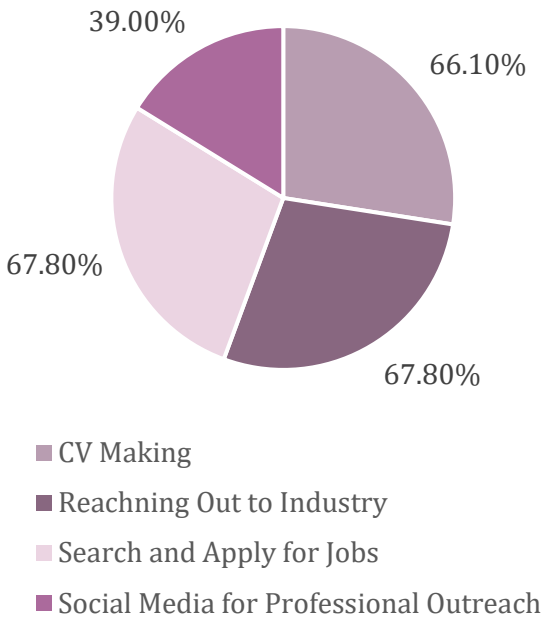


Source: Authors' calculations.

Figure 66 shows that the majority of faculty members expressed their commitment to actively assisting students in learning how to create powerful CVs. Faculty members were committed to assisting students in making the strongest possible first impression on potential employers because they understand that a CV is a direct

reflection of the individual. Additionally, they diligently offered consistent training sessions to give students the tools they needed for successful job searching. This advice covered the nuances of the application process as well as how to locate career opportunities compatible with their academic credentials.

Figure 66: Guidance Provided to Students in Universities



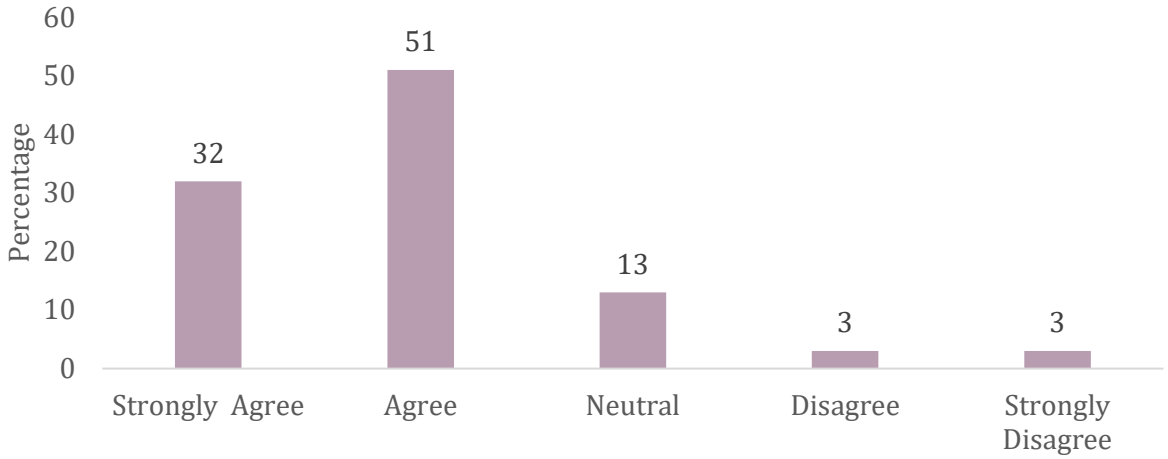
Source: Authors' calculations.

Numerous educational institutions have also forged close alliances and partnerships with businesses, fostering crucial ties between the academic and business worlds. Students who want to work in these fields will benefit from this collaborative approach because it gives them firsthand knowledge of the positions available, the qualifications needed, and the expectations of the sector. Such programmes are essential for enabling students to more successfully navigate the job market and, ultimately, land positions that are in line with their qualifications and career goals. The commitment of the faculty and institutions to ensuring that students are well-prepared for the transition from education to meaningful employment is essentially reflected in this multifaceted support system.

Figure 67 shows how enthusiastic and in agreement faculty members were with universities' proactive encouragement of students to participate in extracurricular and co-curricular activities. These extracurricular activities are thought to be crucial to a student's overall development while enrolled in a degree programme. Students' ability to solve problems in the real world is significantly improved by practical exposure to industries and workplaces. It entails programs like frequent career fairs, industrial tours, and internships that not only help students feel more confident but also offer priceless chances to learn from real-world industry applications.

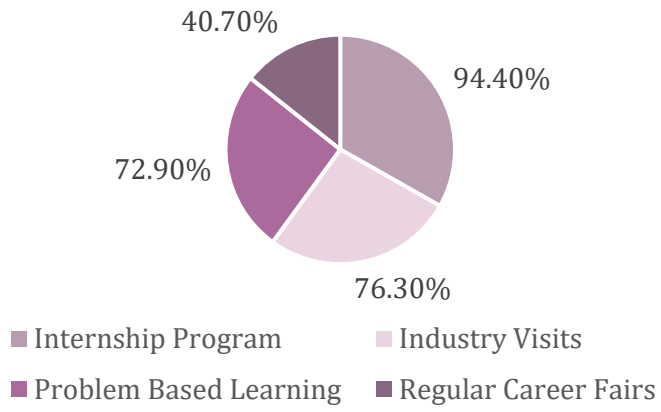
Figure 68 aptly illustrates the resounding affirmation from academics, showing that educational institutions go above and beyond by not only organising insightful industrial tours but also by facilitating internships across diverse organisations, ranging from multinational corporations to governmental bodies. Additionally, the consistent hosting of career fairs is emphasised as a particularly successful strategy, acting as a one-stop platform where students can explore a wide range of employment opportunities under one roof. These coordinated efforts demonstrate the institutions' and faculty's dedication to supporting students' practical experiences and improving their career prospects.

Figure 67: Encouraging Students at Universities/HEIs to Participate in Extracurricular/Co-curricular Activities



Source: Authors' calculations.

Figure 68: Provision of Practical Exposure to Industry/Professional Working Environments and Corporate Dynamics to Students

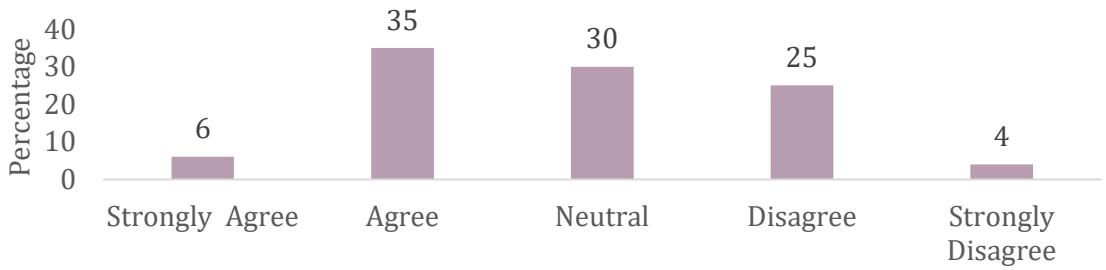


Source: Authors' calculations.

A substantial number of faculty responses, as shown in Figure 68, expressed concerns about the perceived lack of job opportunities available to students after they complete their studies. Some people strongly disagreed with the idea that there were no jobs in the market, while others were neutral on the subject. It is crucial to clarify that there are opportunities on the job market, but the trick is for students to stay competitive and pick up useful skills throughout their academic careers. In this context, it is clear that rather than just the degree, it is the range of opportunities that students actively create for themselves by enhancing their skills and competencies that determine one's career prospects

Figure 70 shows that a sizeable majority of faculty members concurred that graduates from more prestigious universities had a distinct advantage in terms of job placement over graduates from less prestigious institutions. It is crucial to recognise that there were faculty members who disagreed and had a different viewpoint. They disputed the idea that getting a job primarily depended on a university's reputation. Instead, these professors stressed the importance of skills and competencies in improving students' prospects, whether in the domestic or international job market.

Figure 69: There Are No Jobs in the Market/Industry

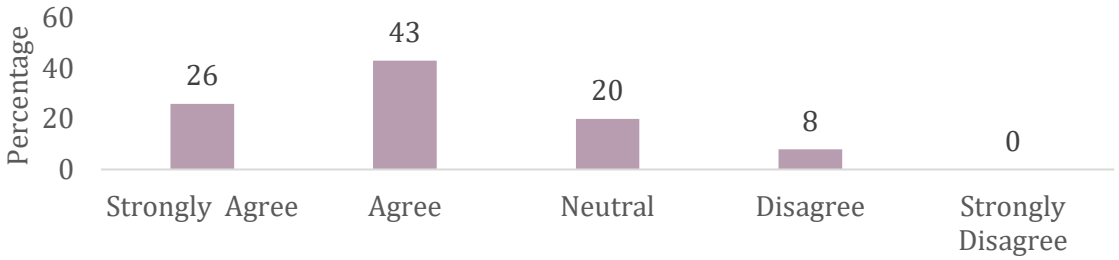


Source: Authors' calculations.

Undoubtedly, being fluent in English is a requirement for many jobs, especially in today's globalised society where it frequently serves as the primary language of business and international communication. A greater variety of career opportunities, easier effective communication in multicultural workplaces, and improved access to international markets are all made possible by English proficiency. It is especially important in areas like international business, diplomacy, academia, and industries that place a big emphasis on cross-border interactions. The information in Figure 71 underlines the faculty's unequivocal advice to students: having a strong command of the English language greatly improves one's chances of finding employment. It is noteworthy that the vast majority of faculty members strongly concurred with this position. Their position as a group highlights the crucial part that English proficiency plays in landing a job.

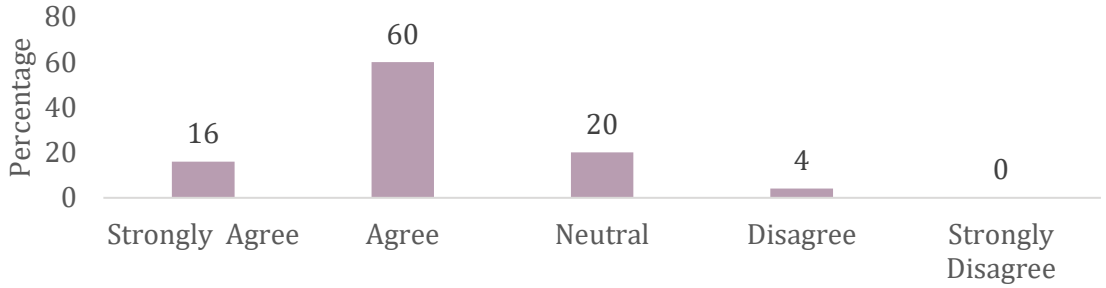
Figure 72 offers strong evidence that securing employment opportunities is not significantly influenced by family backgrounds, personal recommendations, or social ties. This observation represents a fundamental shift in the job market towards merit-based selection procedures. It demonstrates a shift away from relying on kinship ties or personal connections in favour of qualifications, skills, and competencies as the key factors in hiring decisions.

Figure 70: Effect of the Overall Perception and Reputation of a University on Selection for the Job



Source: Authors' calculations.

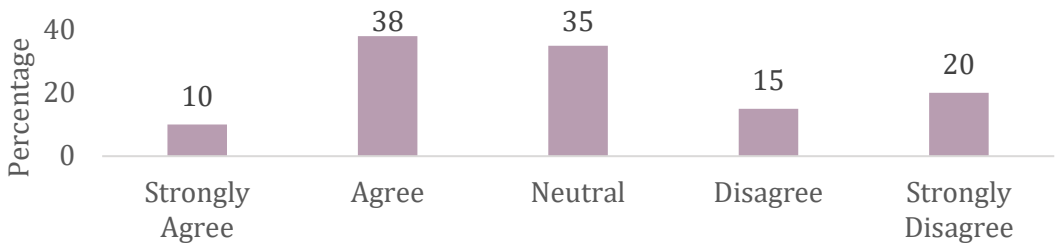
Figure 71: Importance of the Command over the English Language in the Selection for a Job



Source: Authors' calculations.

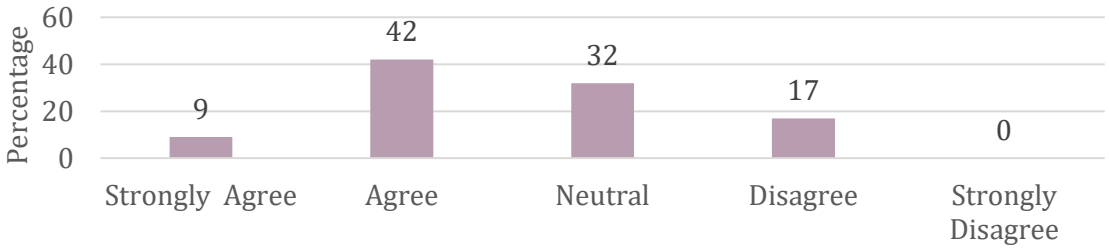
Encouragement comes from the trend towards a meritocratic and more equitable job market, which promotes equality and fairness for all people, regardless of their social or family backgrounds. It illustrates the value of credentials and the capacity to prove one's suitability for a position through pertinent abilities and experiences. It is important to keep in mind, though, that networking and professional relationships still have value in terms of career advancement and access to opportunities within particular industries or fields. This is true even though these factors have lessened the impact of personal connections on job placement.

Figure 72: Role of Family background/Linkages/Reference Role in the Selection for a Job



Source: Authors' calculations.

Figure 73: Society's Encouragement of Women Engineers' Participation in the Labour Force



Source: Authors' calculations.

Comparative Analysis

Outcome-based education has made the curriculum, programme learning outcome, course learning outcomes, and key performance indicators consistent throughout Pakistan. Furthermore, the PEC is a signatory to the Washington Accord making our education at par with international standards. The PEC regularises the conformance of the various programmes through regular visits by experts from other HEIs.

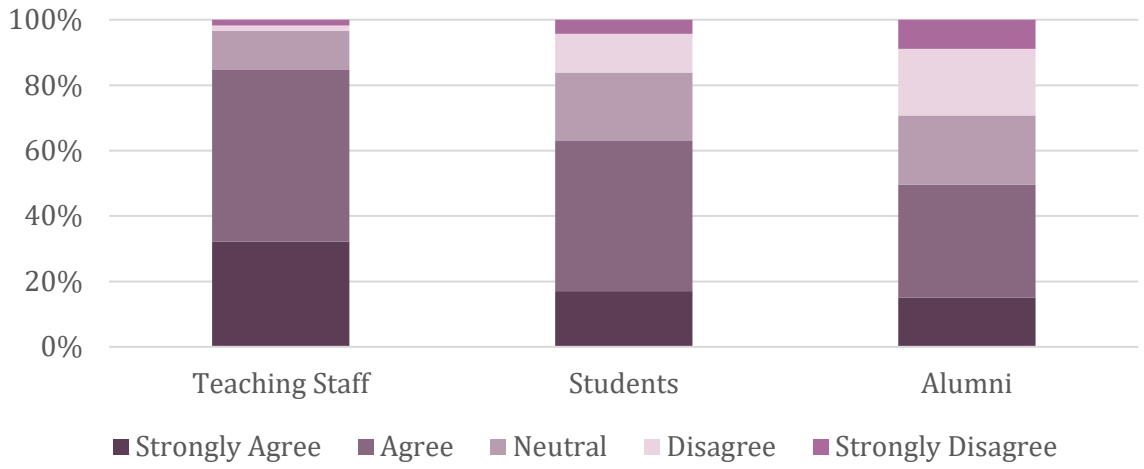
However, the assessment of activities outside a classroom setting remains outbounds of outcome-based education. Thus, no key performance indicators exist for activities outside the classroom setting. Extracurricular and co-curricular activities are an integral part of students' development and hold a key to their success in professional life.

Figure 74 shows that confidence in extracurricular/co-curricular activities increases dramatically from faculty to students to alumni. This shows the confidence mismatch between custodians of imparting knowledge to alumni who are in the best position to evaluate their effectiveness. Given the success of the PEC in making the delivery of curriculum consistent, it should also provide guidelines and key performance indicators for activities outside the classroom setting. This can be readily achieved since several programme learning outcomes can be mapped to extracurricular/co-curricular activities. The following programme learning outcomes are recommended to be

mapped with student performance outside the classroom setting.

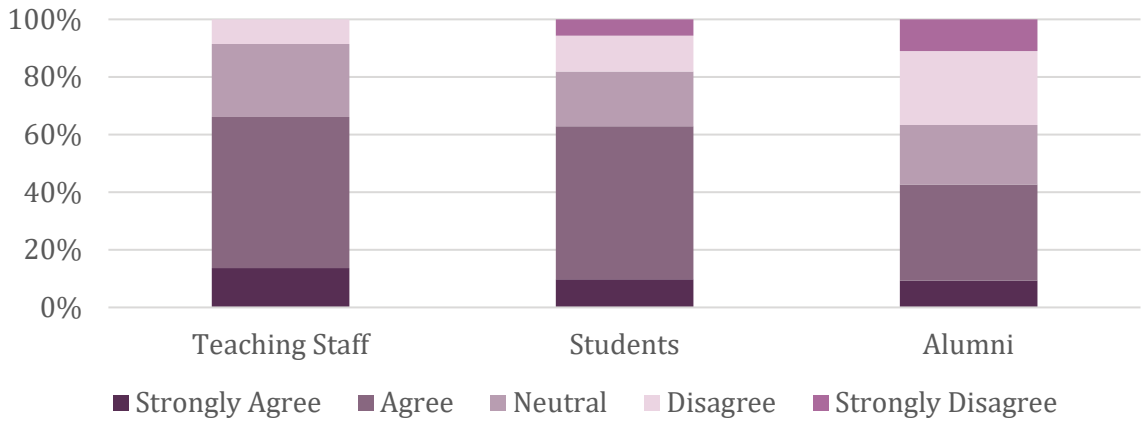
- **PLO6** The Engineer and Society
- **PLO7** Environment and Sustainability
- **PLO8** Ethics
- **PLO9** Individual and Teamwork
- **PL10** Communication
- **PLO11** Project Management
- **PLO12** Lifelong learning

Figure 74: Universities/HEIs' Encouragement of Students to Participate in Extracurricular/Co-curricular Activities



Source: Authors' calculations.

Figure 75: Provision of the Right Balance Between Theory and Practical/Hands-On Work in Education Design/Curriculum

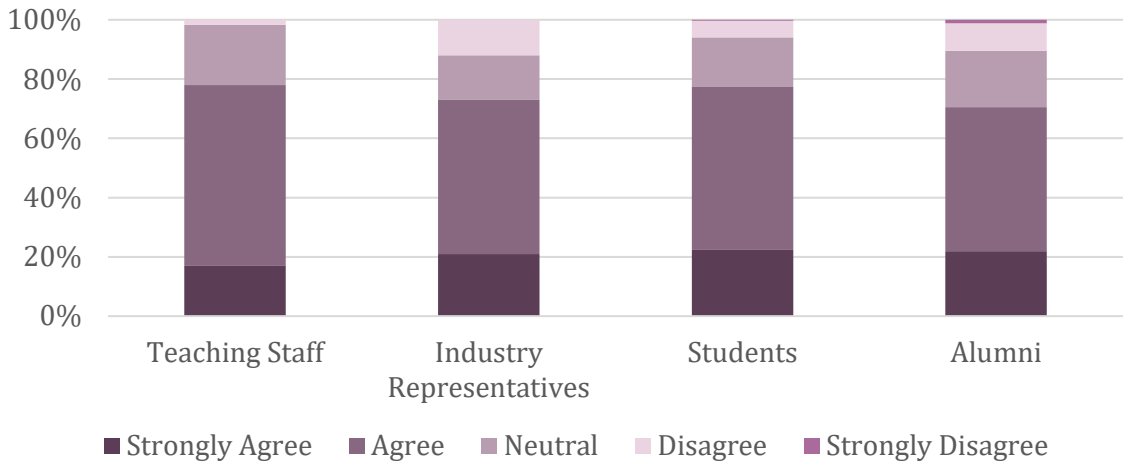


Source: Authors' calculations.

Moving away from soft skills development outside classrooms, the next area of improvement is the development of the right balance between theory and practical/hands-on work. These activities are classified as the psychomotor domain in outcome-based education and are to be polished in a lab setting. Figure 75 identifies a major area of improvement. To achieve more hands-on learning would require out-of-the-box thinking as the majority of workstations for engineers cost several millions of rupees. The purchase of reusable tool kits in every lab, assignment of complex engineering and problem-based learning can help achieve this.

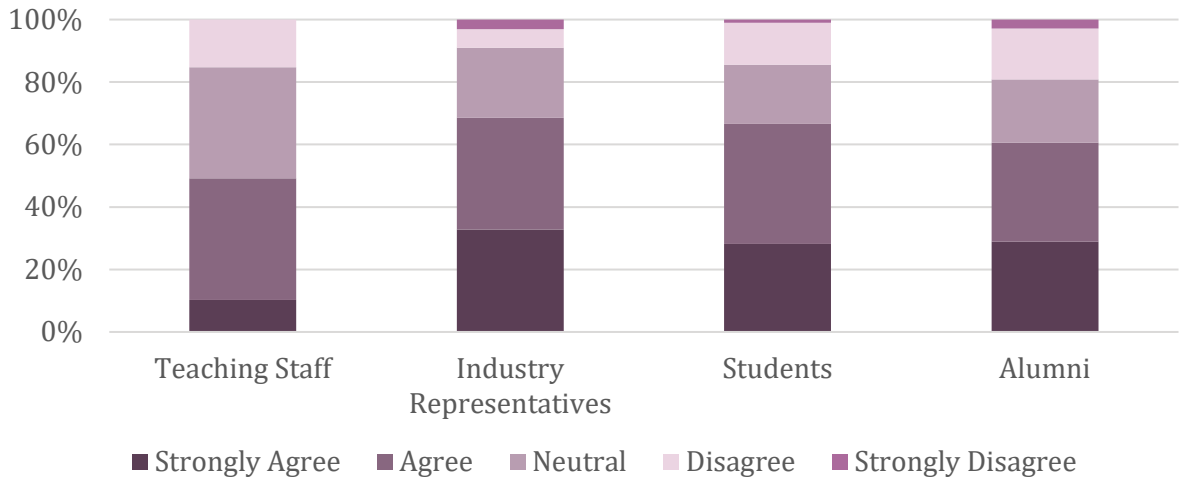
One area where the feedback from each of the stakeholders was consistent is the importance of English for prospects of a job, as shown in Figure 76. English is the mode of instruction throughout the country, has an entire programme learning outcome for itself, and technical presentations are widely used to assess students' progress in courses. Despite the level of emphasis at the undergraduate level, the outcome is not readily achieved as language development starts at a much earlier age. The importance of this should be acknowledged at the primary education level and activities should be arranged to master them. It was also observed during the qualitative survey that even before language, mastering effective communication is more critical. Here again, the role of various student societies is all the more critical and they need to be involved in the decision-making at the university level.

Figure 76: Role of Command over the English Language in an Individual's Success/Prospects of a Job



Source: Authors' calculations.

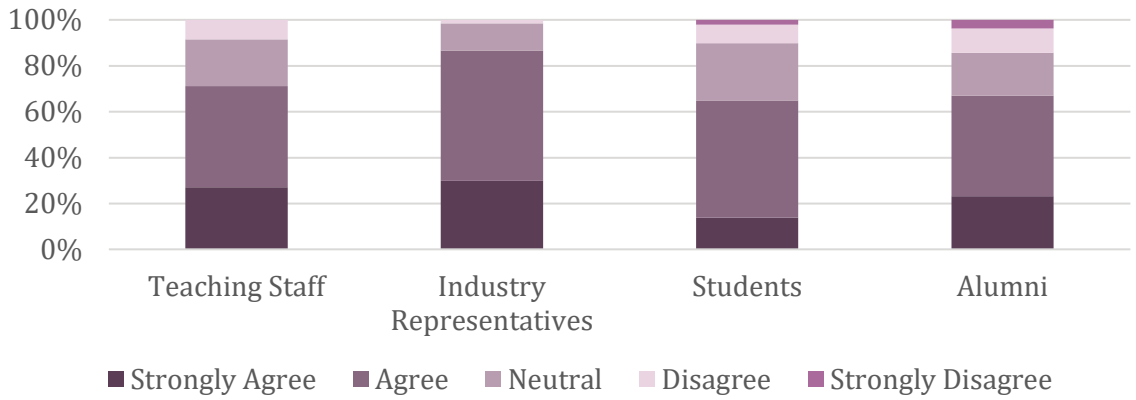
Figure 77: Importance of Family Background and Socioeconomic Status of a Student in Getting a Good Job



Source: Authors' calculations.

The family background and socioeconomic status of a student are other important factors in job replacement, which is evident from consistent opinions of industry representatives, students, and alumni, as shown in Figure 77. The faculty, however, considered a lesser effect of these factors as they felt that the competence of a student would be weighed more. Nevertheless, the perception of background is overarching and cannot be neglected. The next factor (Figure 78), the perception of the university is considered by all stakeholders to be an important factor for a good job placement.

Figure 78: Important Role the Overall Perception and Repute an Institute Plays in Getting a Job as Compared to the Knowledge and Skill of a Graduate



Source: Authors' calculations.

Thus, the disadvantages of a modest family background and socioeconomic factors can be compensated by the positive perception of the university. Universities and their departments should make a conscious effort to showcase their performance, student achievements, research output, and industrial impact. This will not only attract more students but, more importantly, lead to better job placements.

4. QUANTITATIVE DATA ANALYSIS-II

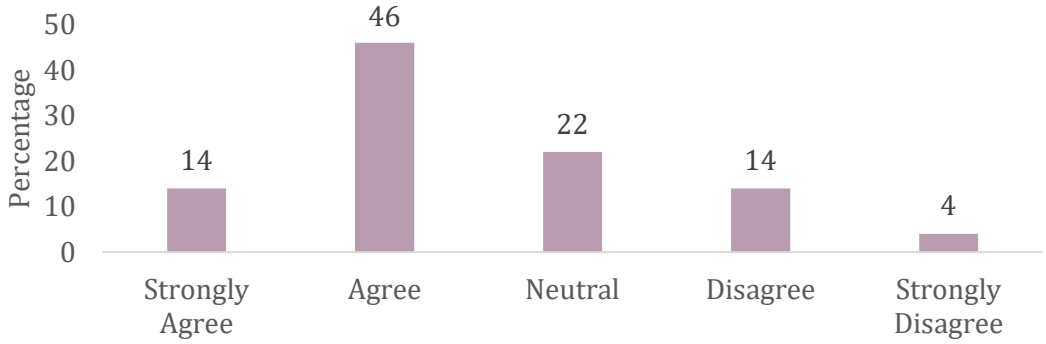
Job Seekers

Job seekers were further categorised into:

- Fresh engineering graduates: those who graduated three or less than three years ago. They were either looking for a job or were currently employed.
- Senior year students: These included final year (7th and 8th semester) students who were applying for jobs and usually had industry experience through internships, etc.

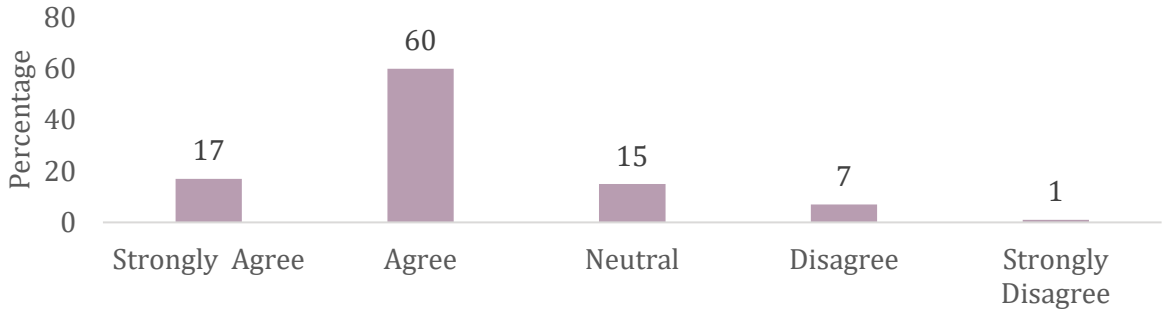
Fresh engineering graduates are one of the key subjects in this research. We also refer to them interchangeably as alumni or job seekers. Alumni engagement has now begun to be unanimously recognised as a crucial contributor to a university's growth. To this end, Pakistani universities have increasingly started to celebrate alumni homecoming, establishing dedicated alumni engagement offices, and conducting endowment fund drives such as "Give A Day to LUMS" by the Lahore University of Management Sciences.

Figure 79: Fresh Graduates: The Courses Taught are of High Quality and Appropriate for Learning



Source: Authors' calculations.

Figure 80: Senior Year Students: The Courses Taught are of High Quality and Appropriate for Learning



Source: Authors' calculations.

5. MACHINE LEARNING

Machine learning (ML) is a subfield of artificial intelligence (AI) that focuses on the development of algorithms and statistical models that enable computers to learn and make predictions or decisions without being explicitly programmed. In essence, machine learning allows machines to recognise patterns, extract meaningful insights, and improve their performance over time based on data. Machine learning systems leverage data to automatically learn and adapt from experience. The central idea is to enable computers to generalise from data and make predictions or decisions based on previously unseen data.

Key Components Involved

1. Data: Machine learning algorithms require a substantial amount of data for training. This data typically consists of input features (attributes) and their corresponding outcomes or labels (supervised learning) or just input data (unsupervised learning).

2. Model: The model represents the mathematical or algorithmic representation of the relationships between input data and outcomes. The goal is to find a model that captures the underlying patterns in the data.

3. Learning Algorithm: The learning algorithm is the engine that drives the model's training process. It uses the data to adjust the model's parameters and improve its ability to make accurate predictions or decisions.

Types of Machine Learning

Machine learning can be categorised into several types based on the nature of the learning and the data available. Machine learning algorithms are classified into five major types, namely, supervised learning, unsupervised learning, semi-supervised learning, reinforcement learning, and deep learning.

1. Supervised Learning: Supervised learning is a machine learning technique in which the algorithm learns from a set of labelled data, that is, data with a known output or target variable. The goal of supervised learning is to develop a function that maps input data to output data and to make accurate predictions on new or previously unknown data. Classification, regression, and ranking are examples of common supervised learning tasks. Decision trees, random forests, support vector machines, k-nearest neighbours, logistic regression, linear regression, and other common supervised learning methods are commonly used methods.

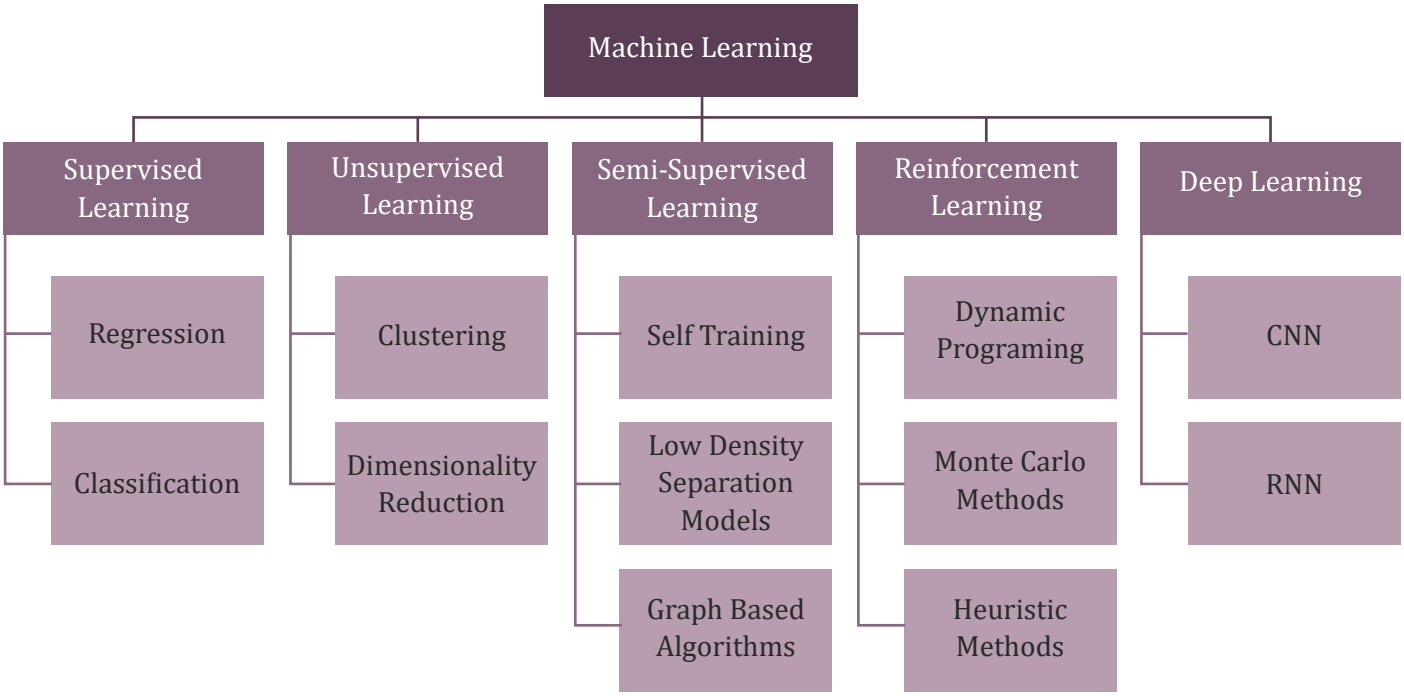
2. Unsupervised Learning: Unsupervised learning is a machine learning technique in which the algorithm learns from unlabelled data, that is, data with no defined output or target variable. Unsupervised learning seeks to uncover hidden patterns, structures, or characteristics in data to produce meaningful insights or representations for the data. Clustering, dimensionality reduction, anomaly detection, and association rule mining are examples of popular unsupervised learning problems. Unsupervised learning methods that are popular include k-means, hierarchical clustering, principal component analysis, independent component analysis, autoencoders, etc.

3. Semi-Supervised Learning: Semi-supervised learning is a machine learning technique in which the algorithm learns from a set of partially labelled data, i.e., data with a known output or target variable and an unknown output or target variable. The purpose of semi-supervised learning is to use both labelled and unlabelled data to improve the learning algorithm's performance so that it can make better predictions on fresh or unknown data. Semi-supervised learning problems include semi-supervised classification, semi-supervised regression, semi-supervised clustering, and so on. Self-training, co-training, label propagation, label spreading, and other semi-supervised learning techniques are popular.

4. Reinforcement Learning: Reinforcement learning is a machine learning technique in which the algorithm learns from its actions and feedback from its surroundings, i.e., data with no specified output or target variable but with incentives or penalties for each action. By interacting with the environment, reinforcement learning aims to learn a policy that maximizes the expected cumulative reward over time. Some examples of frequent reinforcement learning tasks include optimal control, sequential decision-making, gameplay, robotics, and so on. Q-learning, SARSA, policy gradient approaches, deep Q-networks (DQN), actor-critic methods (AC), and other popular reinforcement learning algorithms are some popular methods.

5. Deep Learning: Deep learning is a subset of machine learning that utilises neural networks with multiple layers (deep neural networks) to model complex patterns in data. Convolutional neural networks (CNNs) are used for image analysis, while recurrent neural networks (RNNs) are suited for sequential data. Deep learning has achieved remarkable success in areas like image recognition, natural language processing, and speech recognition. The classification of machine learning is illustrated in Figure 81.

Figure 81: Classification of Machine Learning



Applications of Machine Learning

Machine learning is a wide term that refers to a variety of methodologies that allow the investigator to learn from data. These technologies may allow large real-world databases to be transformed more quickly into applications that benefit many sectors such as cybersecurity, smart cities, healthcare, e-commerce, agriculture, and many more. Several machine-learning techniques can be used to analyze data and produce intelligent applications. As technology advances and more data becomes available, machine learning continues to play a crucial role in automating tasks, making predictions, and solving complex problems.

Significance of Machine Learning in Identifying the Causes of Unemployment

Machine learning plays a significant role in analysing the reasons for unemployment by providing valuable insights from vast and complex datasets. Understanding the causes of unemployment is crucial for policymakers, economists, and social scientists as it enables them to develop effective strategies to address this pressing societal issue. Machine learning offers a data-driven approach to analyse the complex and multifaceted issue of unemployment. It provides the tools to identify root causes, predict trends, personalise interventions, and make informed policy decisions. By harnessing the power of machine learning, governments, organisations, and researchers can work towards reducing unemployment rates and creating more equitable and prosperous societies. However, it's crucial to address ethical considerations, such as data privacy and fairness, when implementing machine learning solutions in this domain to ensure that they benefit all members of society. Here are the key aspects of the importance of machine learning in this context:

1. Improved Data Analysis: Machine learning can integrate data from various sources, such as labour market statistics, job postings, educational records, and socioeconomic indicators. This comprehensive data collection allows for a holistic view of the factors contributing to unemployment. Machine learning models can determine the relative importance of different factors in causing unemployment. For example, they can assess whether

educational attainment, technological automation, or economic recessions have the most significant impact on joblessness.

2. Pattern Recognition: Machine learning algorithms excel at identifying hidden patterns and relationships within large datasets. They can reveal correlations between unemployment rates and factors like education levels, economic conditions, job availability, and geographic location. Machine learning can uncover complex interactions among variables. It can reveal, for instance, how educational choices are influenced by economic conditions and how these choices, in turn, affect employment prospects. Machine learning can provide insights into individual employment situations by analyzing factors such as skills, experience, and geographical location. This information can help career counsellors and workforce development agencies offer personalised guidance and training.

3. Predictive Modeling: Machine learning models can predict future unemployment trends based on historical data. Machine learning can monitor economic indicators and identify warning signs of economic downturns. These predictions are valuable for governments and organisations to prepare for potential shifts in the job market and spikes in unemployment. Machine learning models can provide real-time analysis and updates on labour market conditions, allowing for quick responses to changing circumstances.

4. Early Job Market Alerts: Machine learning can develop early warning systems for labour market shifts. For instance, if a particular industry is expected to experience significant job losses due to automation, policymakers can proactively implement measures like reskilling programs.

5. Customised Policies: Governments and social service organisations can use machine learning to tailor unemployment policies and support programs based on the unique needs and challenges faced by specific populations. Policymakers can use machine learning to adapt and fine-tune their strategies as new data becomes available, ensuring that their efforts to reduce unemployment remain effective.

Supervised Learning

Supervised learning is a subset of machine learning in which a model is trained using labelled data. Labelled data is data that has a corresponding output or target value, such as a class label or a numerical value, for each input sample [?]. Based on the examples viewed during training, the goal of supervised learning is to develop a function that can translate any input into the proper output. Depending on the nature and complexity of the data, the job, and the desired output, many supervised learning algorithms exist. The following are some of the most prevalent supervised learning techniques:

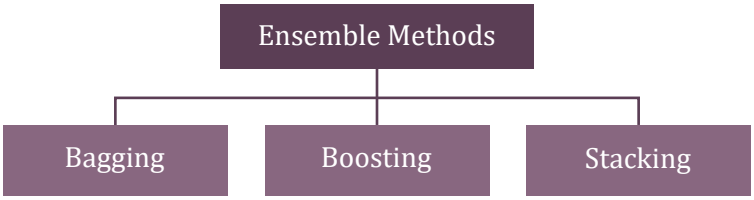
1. Regression: Regression is a technique that predicts a continuous numerical value, such as the price of a house, the height of a person, or the temperature of a city. Regression models can be linear or nonlinear, depending on whether they assume a linear or nonlinear relationship between the input and output variables. Some examples of regression models are linear regression, polynomial regression, logistic regression, and support vector regression.

2. Classification: Regression is a method for predicting a continuous numerical variable, such as the price of a house, a person's height, or the temperature of a city. Regression models can be linear or nonlinear, depending on whether the input and output variables have a linear or nonlinear relationship. Linear regression, polynomial regression, logistic regression, and support vector regression are some examples of regression models.

3. Clustering: Clustering is a technique for categorizing similar input instances into groups based on some measure of similarity or distance. Clustering models do not have labelled output, but they can be used to uncover patterns or structures in data. Clustering models include k-means, hierarchical clustering, and Gaussian mixture models.

4. Ensemble Methods: Ensemble methods are strategies that combine many models to improve prediction performance or robustness. Ensemble approaches, which can be based on multiple concepts such as bagging, boosting, or stacking, can be utilised for both regression and classification applications. Ensemble approaches include random forest, AdaBoost, and gradient boosting. Ensemble techniques are strategies for improving the overall performance and accuracy of numerous models by combining them. They are commonly utilised in machine learning for classification as well as regression problems.

Figure 82: Types of Ensemble Methods of Classification



Types of Ensemble Methods

Ensemble approaches are classified into three types: bagging, stacking, and boosting (Figure 82).

1. Stacking: Stacking is a technique that includes fitting multiple types of models to the same data and then using another model to learn how to best combine the results. The goal is to learn a meta-model that can optimise the final output by leveraging the strengths of several models. Stacking can also deal with diverse data kinds and complex interactions. Super Learner, which employs cross-validation to select the best meta-model, is a popular example of stacking.

2. Boosting: Boosting is a strategy that includes sequentially adding ensemble members that correct prior model predictions and output a weighted average of the predictions. The goal is to reduce the bias of a single model by fitting models on the residuals of prior models iteratively. Boosting is also capable of dealing with high-dimensional data and nonlinear interactions. Gradient boosting, which uses gradient descent to minimise a loss function, is a famous example of boosting.

3. Bagging: Bagging is a strategy that entails fitting multiple decision trees to different samples of the same dataset and averaging the results. The objective is to average numerous noisy but unbiased trees to reduce the variance of a single tree. Bagging can handle missing values and outliers as well. Random forest is a common example of bagging because it includes randomisation in both feature selection and sampling. Bagging, short for bootstrap aggregating, is a strategy for improving the accuracy and stability of machine learning algorithms by combining the predictions of numerous models. It is one of the most often used ensemble learning methods, which employs many base learners to give a more accurate final prediction. In this section, we will define bagging, explain how it works, and discuss its benefits and drawbacks.

How does Bagging Work?

Bagging works by employing a process known as bootstrapping to create several subsets of the original training data. Bootstrapping is a method of randomly sampling data with replacement, which means that the same data point might be chosen multiple times. Each subset is the same size as the original data set, although there may be duplicates or missing values. A basic learner (typically a decision tree) is trained individually for each subset. When trained on a single subset, the base learners are referred to as weak learners because they might exhibit

large variance (overfitting) or high bias (underfitting). When they are integrated, however, they can build a powerful learner that lowers both variation and bias.

The bagging strategy obtains the final prediction by averaging the predictions of all the base learners for regression problems or by taking the majority vote for classification tasks. By averaging out the noise and outliers from the different models, the bagging strategy minimises the variance of the prediction model. It also decreases bias by capturing more characteristics of data distribution from various subsets.

Advantages of Bagging

Bagging has several advantages, including:

1. It enhances the accuracy and stability of machine learning algorithms by minimising variation and bias.
2. It prevents data overfitting by building distinct models from different subsets.
3. It can efficiently handle higher dimensional data by decreasing the feature space in each subset.
4. Using bootstrapping, it can manage missing values and outliers in data.
5. It can parallelise training by running various subsets on multiple machines.

Disadvantages of Bagging

Bagging has the following disadvantages:

1. It raises computational complexity and memory requirements by establishing several models.
2. It may reduce the model's interpretability and explainability by averaging or voting on various forecasts.
3. It may not considerably boost performance if base learners are already strong or
4. low-variance.
5. It may not efficiently eliminate bias if the base learners are too unsophisticated or biased.

Methodology

Data Collection through Surveys: An unemployment survey was designed. Various questions, such as employment status, educational institute, education level, age, etc. were asked in the survey. These questions helped in gathering the required data. The surveys were conducted in person, via email, and through online survey platforms. The sample selection for the survey was done with care. The survey participants were people who had recently graduated from university and were within the age bracket of 22-30 years. Data was collected from 217 alumni.

Data Preprocessing: The collected data was reviewed and all missing values, inconsistencies, or errors were removed. It was made sure that all responses were in a consistent format and adhered to the survey's defined structure. Once the data was cleaned and prepared, it was exported to a CSV file format. The CSV file follows the typical CSV structure with headers in the first row and data in subsequent rows, separated by commas or another specified delimiter.

Bagging Classifier: To train the model, a total of 26 characteristics were employed. To perform the classification, bagging was utilised. Then, RF and NN were used as base classifiers in a hierarchical structure for the bagging ensemble. Based on the out-of-bag error and total accuracy, after numerous tries the number of bagging trees was set to 10 trees. RF trees were split using the Gini diversity index criterion. The newly created trees were not pruned and were allowed to reach their maximum size. Based on overall accuracy and the random combinations of the input variables, the ideal number of RF trees was chosen.

Ten RF trees were employed to attain the best overall accuracy.

Steps to Perform Bagging in Weka:

1. After opening Weka, the dataset was loaded using the ”Explorer” interface.
2. Firstly, the attributes of the dataset were selected.
3. In the ”Classify” tab, the ”meta” category was chosen, and then ”Bagging” was selected from the list of classifiers.
4. The base classifier was selected by clicking on the ”Choose” button next to the ”Classifier” option. A base classifier for random forest was chosen which was used within each bagged model.
5. The relevant parameters were specified and then the ”Start” button was clicked to run the bagging process. After bagging was complete, the model’s performance was evaluated using the evaluation metrics.

The parameters and their details are given in Table 12.

Table 12: Values and a Brief Description of Bagging Model Parameters

Parameters	Values	Brief Description
bagSizePercent	63	Size of each bag, as a percentage of the training set size.
batchSize		Batch size to use if the base learner is a BatchPredictor
calcOutOfBag	True	Whether the out-of-bag error is calculated.
Classifier	weka. classifiers. .rules.JRip	The base classifier to be used.
Debug	True	If set to true, the classifier may output additional info to the console.
doNotCheckCapabilities	True	If set, classifier capabilities are not checked before the classifier is built (Use with caution to reduce runtime)
numDecimalPlaces		The number of decimal places to be used for the output of numbers in the model.
numExecutionSlots	1	The number of execution slots (threads) to use for constructing the ensemble.
numIterations	65	The number of iterations to be performed.
outputOutOfBag-ComplexityStatistics	True	Whether to output complexity-based statistics when out-of-bag evaluation is performed.
printClassifiers	True	Print the individual classifiers in the output

representCopiesUsing Weights	True	Whether to represent copies of instances using weights rather than explicitly
Seed	1	The random number seed to be used.
storeOutOfBagPredictions	True	Whether to store the out-of-bag predictions.

Attribute Selection

Attribute selection, also known as feature selection, is a critical step in machine learning and data analysis. It involves choosing a subset of relevant attributes (features) from the original set of features to improve model performance, reduce dimensionality, and enhance interpretability. One approach to attribute selection is the greedy stepwise method, which is a sequential feature selection technique. We did attribute selection by using the greedy stepwise method with a correlation-based feature subset evaluator (CfsSubsetEval) as the attribute evaluator.

Greedy Stepwise Algorithm: The greedy stepwise attribute selection is a heuristic-based approach that iteratively selects and evaluates features in a forward or backward manner. It aims to find the best subset of features by adding or removing one feature at a time based on a specific criterion, such as model performance or some statistical measure. The parameters and their details are given in Table 13.

Table 13: Values and a Brief Description of Greedy Stepwise Model Parameters

Parameters	Values	Brief Description
bagSizePercent	63	Size of each bag, as a percentage of the training set size.
batchSize		Batch size to use if the base learner is a BatchPredictor
calcOutOfBag	True	Whether the out-of-bag error is calculated.
classifier	weka. classifiers. .rules.JRip	The base classifier to be used.
Debug	True	If set to true, the classifier may output additional info to the console.
doNotCheckCapabilities	True	If set, classifier capabilities are not checked before the classifier is built (use with caution to reduce runtime)
numDecimalPlaces		The number of decimal places to be used for the output of numbers in the model.
numExecutionSlots	1	The number of execution slots (threads) to use for constructing the ensemble.
numIterations	65	The number of iterations to be performed.
outputOutOfBag-ComplexityStatistics	True	Whether to output complexity-based statistics when out-of-bag evaluation is performed.
printClassifiers	True	Print the individual classifiers in the output
representCopies UsingWeights	True	Whether to represent copies of instances using weights rather than explicit
seed	1	The random number seed to be used.
storeOutOfBag Predictions	True	Whether to store the out-of-bag predictions.

Performance Metrics Utilised by Machine Learning

Performance metrics are essential tools for evaluating the effectiveness and quality of machine learning models. They help data scientists, researchers, and practitioners understand how well a model is performing and make informed decisions about model selection, hyperparameter tuning, and feature engineering. Various metrics are available for the performance evaluation in classical machine learning such as TP rate, FP Rate, Precision, Recall, F-measure, MCC, ROC Area, PRC Area, kappa statistic, mean absolute error, and root mean squared error. The explanation of these evaluation metrics is discussed below:

1. Accuracy: Accuracy is a basic and widely used metric that measures the proportion of correct predictions made by the model. It gives an overall sense of a model's correctness. However, it may not be suitable for imbalanced datasets, where one class greatly outnumbers the others as the model may still have a high accuracy by predicting the majority class most of the time. Accuracy is calculated as:

Accuracy = (Number of Correct Predictions)/(Total Number of Predictions) (5.1)

2. Precision: Precision focuses on the accuracy of positive predictions. It calculates the ratio of true positive predictions (correctly predicted positives) to all positive predictions made by the model. Precision is essential in cases where the cost of false positives is high, such as medical diagnoses or fraud detection. The formula for calculating

precision is:

$$Precision = \frac{TP}{(TP + FP)} \quad (5.2)$$

where TP is the number of true positives and FP is the number of false positives.

3. Recall (Sensitivity): Recall, also known as sensitivity or true positive rate, measures the proportion of actual positive instances correctly predicted by the model. It is especially important when the cost of false negatives is high, such as in medical tests or security applications. The formula for calculating recall is:

Recall = TP/(TP + FN) (5.3)

where TP is the number of true positives and FN is the number of false negatives.

4. F1 Score: The F1 score is the harmonic mean of precision and recall, offering a balanced assessment of a model's performance. It is useful when there is an uneven class distribution or when both precision and recall need to be considered simultaneously. The formula for calculating the F-measure is

F − measure = 2(Precision ∗ Recall)/(Precision + Recall) (5.4)

where precision is the number of true positives divided by the sum of true positives and false positives and recall is the number of true positives divided by the sum of true positives and false negatives.

5. ROC-AUC (Receiver Operating Characteristic - Area Under Curve): The ROC (receiver operating characteristic) curve is a graph showing the performance of a classification model at all classification thresholds. This curve plots two parameters: true positive rate (TPR) and false positive rate (FPR). The precision-recall curve (PRC) is a graph that shows the trade-off between precision and recall across different decision thresholds. The area under the PRC (AUPRC) is calculated as the area under the PR curve. The x-axis of the PRC shows recall, which is also known as sensitivity or the true positive rate (TPR), and is calculated as TP / (TP + FN). The y-axis of the PRC shows precision, which is also known as the positive predictive value (PPV). It is calculated as:

$$PPV = TP/(TP + FP) \quad (5.5)$$

ROC-AUC provides an overall measure of a model's ability to distinguish between classes, irrespective of the chosen decision threshold. A higher ROC-AUC indicates better discrimination performance. ROC-AUC is calculated by plotting the receiver operating characteristic curve, which graphs the true positive rate (Recall) against the false positive rate at various threshold values. The AUC represents the area under this curve.

6. False Positive Rate (FPR): The formula for calculating the FPR is:

$$FPR = FP/(FP + TN) \quad (5.6)$$

where FP is the number of false positives and TN is the number of true negatives.

Other evaluation metrics involve MCC. The MCC is calculated using the following formula:

$$MCC = (TP*TN–FP*FN)/sqrt((TP+FP)*(TP+FN)*(TN+FP)*(TN+FN)) \quad (5.7)$$

where TP is the number of true positives, TN is the number of true negatives, FP is the number of false positives, and FN is the number of false.

Cohen's kappa statistic is used to measure the level of agreement between two raters or judges who each classify items into mutually exclusive categories. The formula for Cohen's kappa is calculated as:

$$k = (po–pe)/(1–pe) \quad (5.8)$$

where po is the relative observed agreement among raters, and pe is the hypothetical probability of chance agreement, using the observed data to calculate the probabilities of each observer randomly seeing each category.

The formula for calculating the MAE is:

$$MAE = (1/n)^{X}|y_i - y^i| \quad (5.9)$$

where n is the number of observations, yi is the actual value, and y^i is the predicted value.

Confusion Matrix

A confusion matrix, also known as an error matrix, is a fundamental tool in the evaluation of machine learning models, especially in classification tasks. It provides a detailed breakdown of the model's performance by summarizing the predictions made by the model and comparing them to the actual labels or ground truth. A confusion matrix is especially useful when assessing a model's performance in terms of false positives, false negatives, true positives, and true negatives.

Components of a Confusion Matrix:

1. True Positives (TP): True positives are instances where the model correctly predicted the positive class (correctly identified as positive). For example, in a medical test, this would represent cases where the model correctly identified individuals with a disease.

2. True Negatives (TN): True negatives are instances where the model correctly predicted the negative class (correctly identified as negative). For example, in a spam email filter, this would represent emails that the model correctly identified as not spam.

3. False Positives (FP): False positives are instances where the model incorrectly predicted the positive class (incorrectly identified as positive when it's negative). Also known as type I errors. In a fraud detection system, this would represent legitimate transactions that the model mistakenly flags as fraudulent.

4. False Negatives (FN): False negatives are instances where the model incorrectly predicted the negative class (incorrectly identified as negative when it's positive). Also known as type II errors. Example: In a cancer diagnosis model, this would represent cases where the model failed to identify individuals with cancer.

Confusion Matrix Layout:

A confusion matrix is typically presented in a table format with four cells as illustrated in Figure 83.

Figure 83: Formula for a Confusion Matrix

	Predicted Positive (P)	**Predicted Negative (N)**
Actual Positive (P)	True Positives (TP)	False Negatives (FN)
Actual Negative (N)	False Positives (FP)	True Negatives (TN

Table 14: Results of Accuracy Assessment

Classifier	Class	TP Rate	FP Rate	Precision	Recall	F-Measure	MCC	ROC Area	PRC Area
Neural Networks	Employed	0.75	0.54	0.67	0.75	0.71	0.21	0.65	0.73
	Job Seeker	0.46	0.25	0.55	0.46	0.50	0.21	0.65	0.53
	Weighted Average	0.63	0.43	0.62	0.63	0.63	0.21	0.65	0.65
Bagging with Random Forest	Employed	1.00	0.14	0.92	1.00	0.96	0.89	0.99	0.99
	Job Seeker	0.86	0.00	1.00	0.86	0.93	0.89	0.99	0.99
	Weighted Average	**0.95**	**0.08**	**0.95**	**0.95**	**0.94**	**0.89**	**0.99**	**0.99**

Interpreting the Confusion Matrix

True Positives (TP): These are the instances that the model correctly predicted as positive. High TP indicates the model's ability to correctly identify positive cases.

True Negatives (TN): These are the instances that the model correctly predicted as negative. High TN indicates the model's ability to correctly identify negative cases.

False Positives (FP): These are the instances that the model incorrectly predicted as positive when they were negative. High FP indicates the rate of false alarms or type I errors.

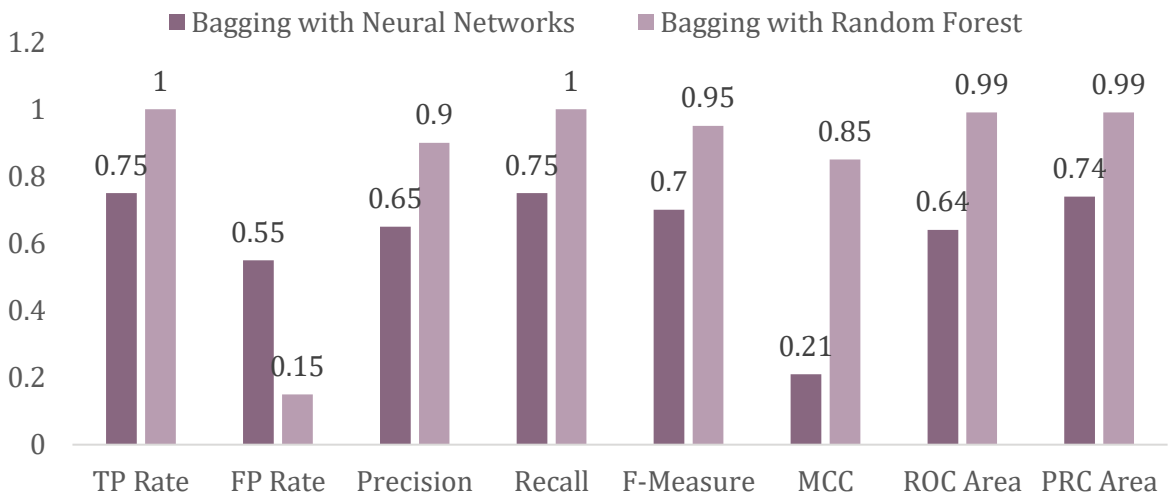
False Negatives (FN): These are the instances that the model incorrectly predicted as negative when they were positive. High FN indicates the rate of missed opportunities or type II errors.

Results

The comparison of the TP rate, FP rate, precision, recall, F-measure, MCC, ROC area, and PRC area of both classifiers with three classes each are given in Table 14. It lists the results of the accuracy assessment. It can be observed from the above comparison that the weighted average of bagging with random forest outperformed the weighted average of neural networks in all metrics. Moreover, Figures 84-86 show the graphical representation of the above metrics for both the classifiers.

The comparison of the Kappa statistic, mean absolute error, and root mean squared error of both classifiers is given in Table 15.

Figure 84: Results of Accuracy Assessment for Class Employed



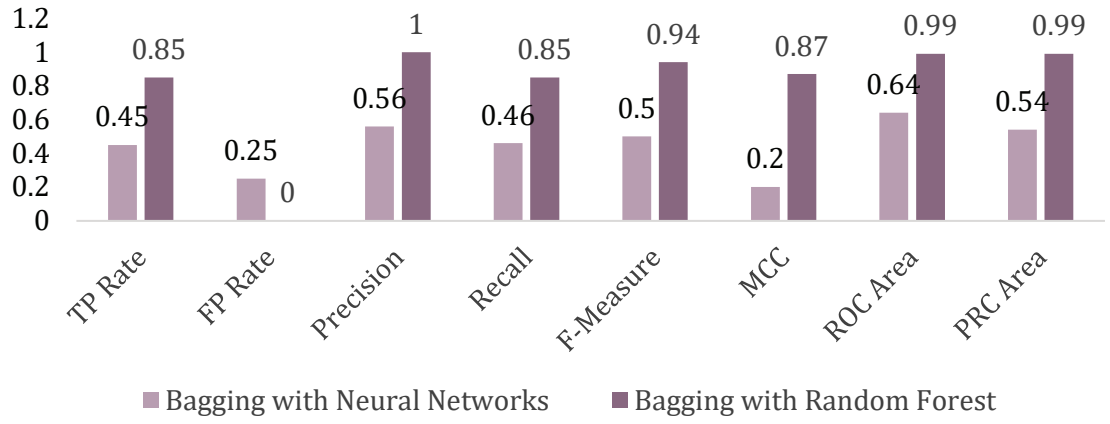
Source: Authors' calculations.

Table 15: Kappa and Error Statistics

Classifier	Kappa Statistic	Mean Absolute Error	Root Mean Squared Error
Neural Networks	0.24	0.43	0.48
Bagging with Random Forest	**0.88**	**0.26**	**0.30**

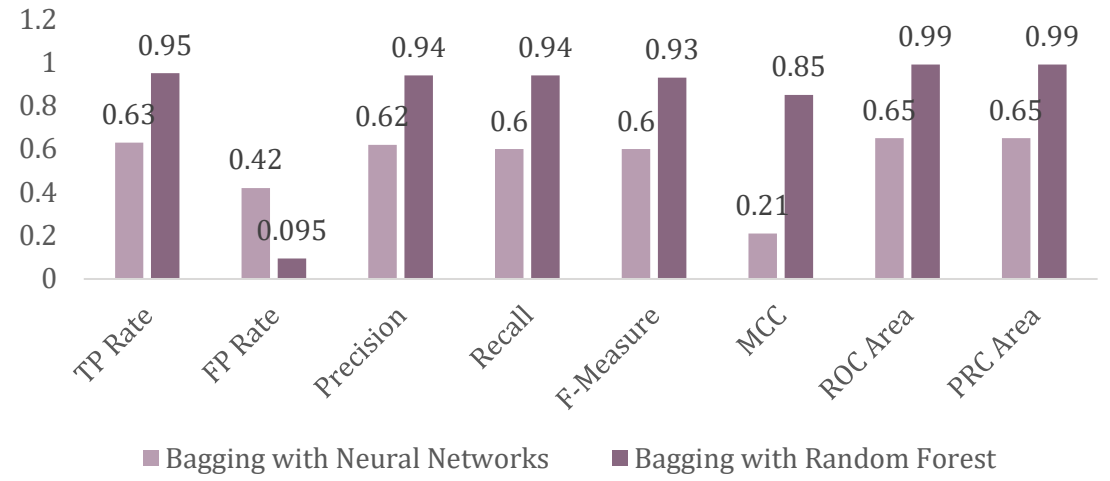
For measuring the performance of the model, the Kappa score was used. It was used to assess the level of agreement between the two raters. The value between 0.81–1.00 is considered an almost perfect agreement. As the proposed model has the Kappa statistic of 0.88, the model is found to be reliable. The mean absolute error is the squared mean of the difference between actual and predictable values. The model is considered more accurate if the mean absolute error is closer to zero because its lower value shows a more correct prediction. Furthermore, the root mean square error estimates the average difference between the actual and predicted values of a statistical model. The RMSE values ranging from 0.2 and 0.5 depict that the model reasonably predicts the data correctly. As the value of RMSE of the proposed model is 0.30, it can be said that the model can predict correctly (Figure 87).

Figure 85: Results of Accuracy Assessment for Class Job Seeker



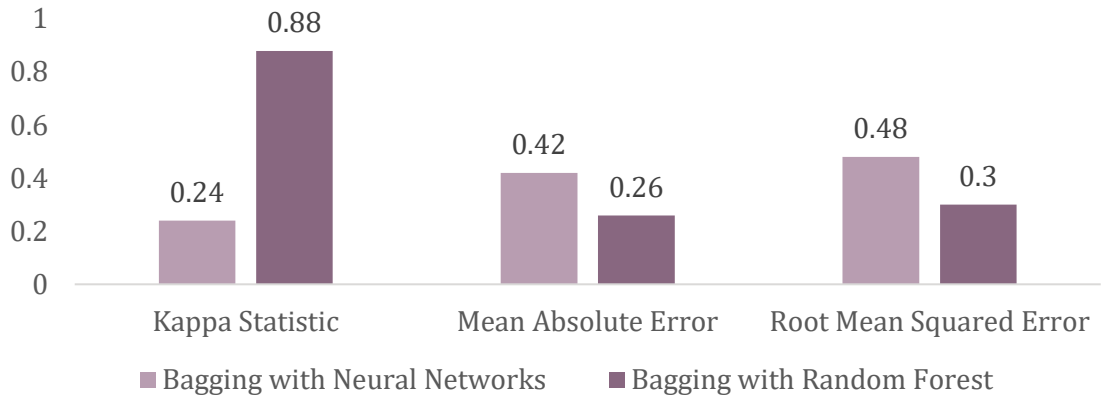
Source: Authors' calculations.

Figure 86: Results of Accuracy Assessment for Weighted Accuracy



Source: Authors' calculations.

Figure 87: Graphical Representation of Kappa and Error Statistics



Source: Authors' calculations.

Figure 88: Confusion Matrix

	Employed	Job Seeker		Employed	Job Seeker
Employed	97	33	**Employed**	130	0
Job Seeker	47	40	**Job Seeker**	12	75

Source: Authors' calculations.

Results of the confusion matrix in Figure 5 show confusion matrices of both classifiers, i.e., (a) bagging with neural networks and (b) bagging with random forest. All the statistics in Figure 88 indicate that bagging with random forest outperformed the classification of the alumni data.

Correlation-based Feature Subset Evaluator (CfsSubsetEval)

The CfsSubsetEval is an attribute evaluator used in conjunction with the greedy stepwise search algorithm for feature selection in machine learning. This combination is commonly used in the Weka software (Waikato Environment for Knowledge Analysis) for feature selection. It assesses the worth of a subset of features by considering the individual predictive ability of each feature and the degree of redundancy among them. It is based on the idea that a good subset of features should have high individual predictive power while being minimally redundant with each other. CfsSubsetEval uses correlation measures to evaluate these criteria. CfsSubsetEval calculates the correlation between each feature and the target variable (class label) to measure its predictive power. Features that are highly correlated with the target variable are considered more valuable.

Table 16: Values and a Brief Description of CfsSubsetEval Parameter Ranker Algorithm

Parameters	Values	Description of Parameter
Debug	True	Output debugging info
doNotCheckCapabilities	True	If set, evaluator capabilities are not checked before the evaluator is built (Use with caution to reduce runtime).
locallyPredictive	True	Identify locally predictive attributes. Iteratively adds attributes with the highest correlation with the class as long as there is not already an attribute in the subset that has a higher correlation with the attribute in question.
missingSeparate	True	Treat missing as a separate value. Otherwise, counts for missing values are distributed across other values in proportion to their frequency.
Num Threads		The number of threads to use, which should be >= size of a thread pool.
poolSize		The size of the thread pool, for example, the number of cores in the CPU.

The ranker search method, a correlation-based feature selection process measures the correlation between the subset of features that are highly correlated with the class [34a]. Thus, it is clear that if the ID rank's value is high, then subsets are highly correlated with each other otherwise there is no relation among them. The criterion used for accessing a subset of features can be expressed as follows:

$M_s = lt\bar{c}f/\mathrm{q}l + l(l-1)t_f\bar{f}$

Where:

M= evaluation of a subset of S consisting of l features; t_cf= average correlation value between features and class labels; t_ff= average correlation value between two features;

The parameters for this are listed in Table 16

Ranking Factors

The top 10 features affecting unemployment obtained using CfsSubsetEval are given in Table 17.

Table 17: Feature Ranking of the Top 10 Factors Contributing to Youth Unemployment

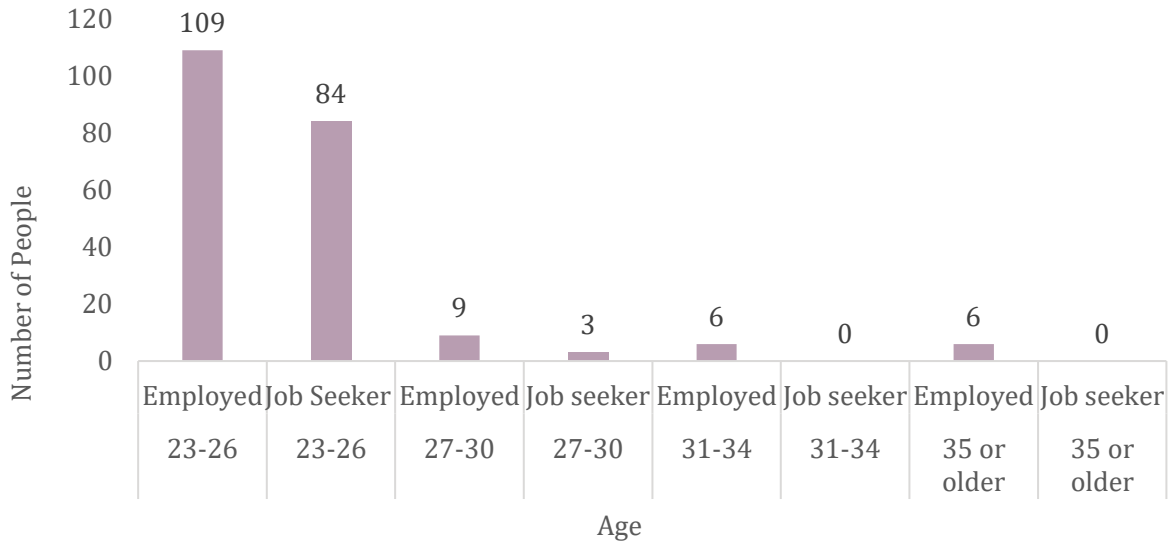
Features	Rank
Age	1
Year of enrollment in the university	2
University	3
At our university/HEI, we were encouraged to participate in extracurricular and co-curricular activities	4
There are no jobs in the market industry	5
My command over the English language plays a major role in my success	6
The overall environment of the university/HEI was conducive to learning	7
All the facilities resources and scientific labs were well-furnished and well-equipped	8
The overall perception and repute of an institute play a stronger role	9
Gender	10

The analysis of the top 10 features which were indicated to be the top contributing factors in youth unemployment ranked by a machine learning bagging model, requires considering both machine learning and social science perspectives. Below is a detailed analysis of each of these features:

1. Age: Age was considered to be the most relevant factor in predicting unemployment, as different age groups may have varying levels of work experience, skills, and job market demand. The machine learning model found age to be a significant factor in predicting unemployment risk (Figure 89). From a social science standpoint, age can influence unemployment due to factors such as retirement, discrimination, and changing job market

demands. Younger individuals might face unemployment due to a lack of experience, while older individuals might face age-related discrimination.

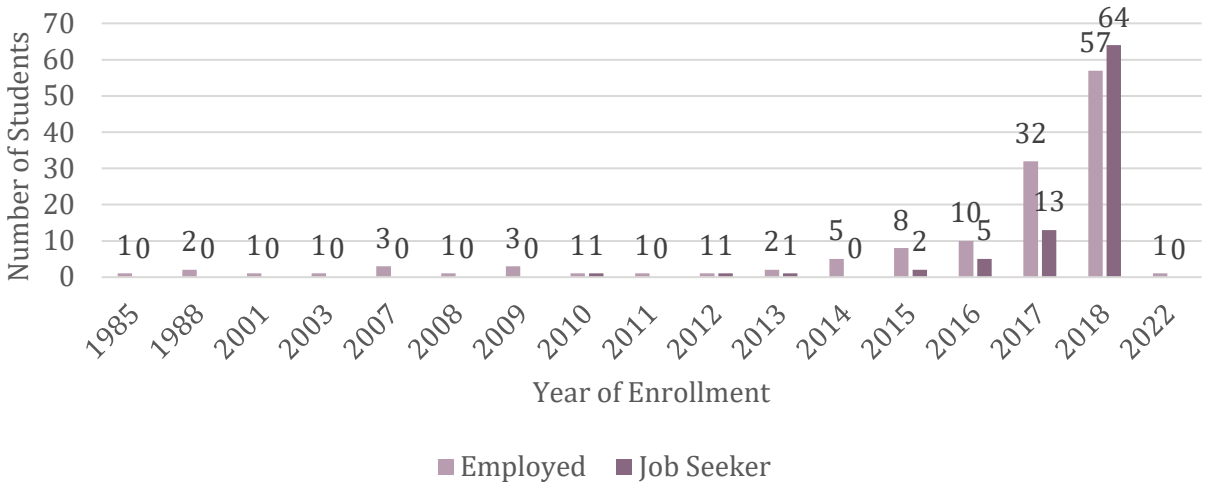
Figure 89: Age as a Relevant Factor in Predicting Unemployment



Source: Authors' calculations.

2. Year of enrollment in the university: Enrollment year affects unemployment predictions as it reflects factors like graduation timing and economic conditions during a student's education. Models found this feature relevant as can be witnessed in Figure 90. The year of enrollment may be related to factors like the relevance of their degree to the job market.

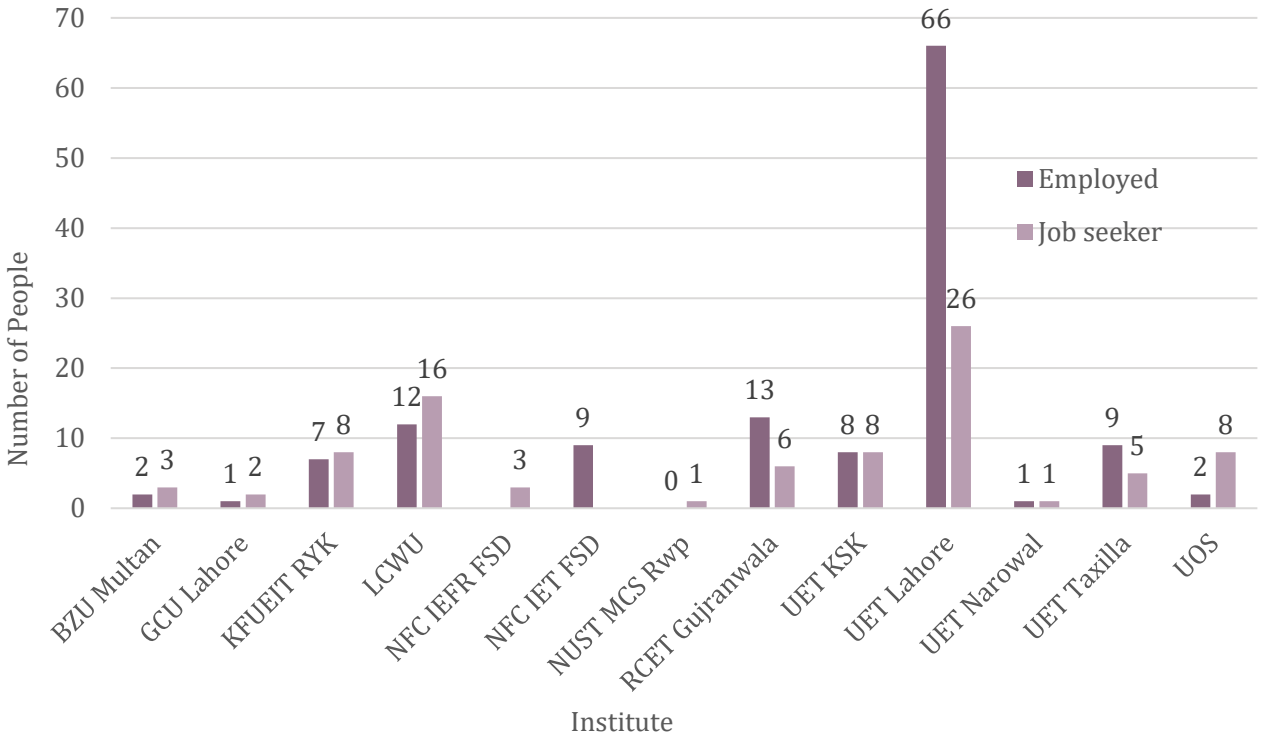
Figure 90: Year of Enrollment for Predicting Unemployment



Source: Authors' calculations.

3. University Name: While the university's name might not directly affect job prospects, it could indirectly influence it if the university's reputation affects job opportunities. Machine learning models found it relevant. The university's reputation can indeed impact job prospects, as employers often consider the quality of education and training received at a particular institution.

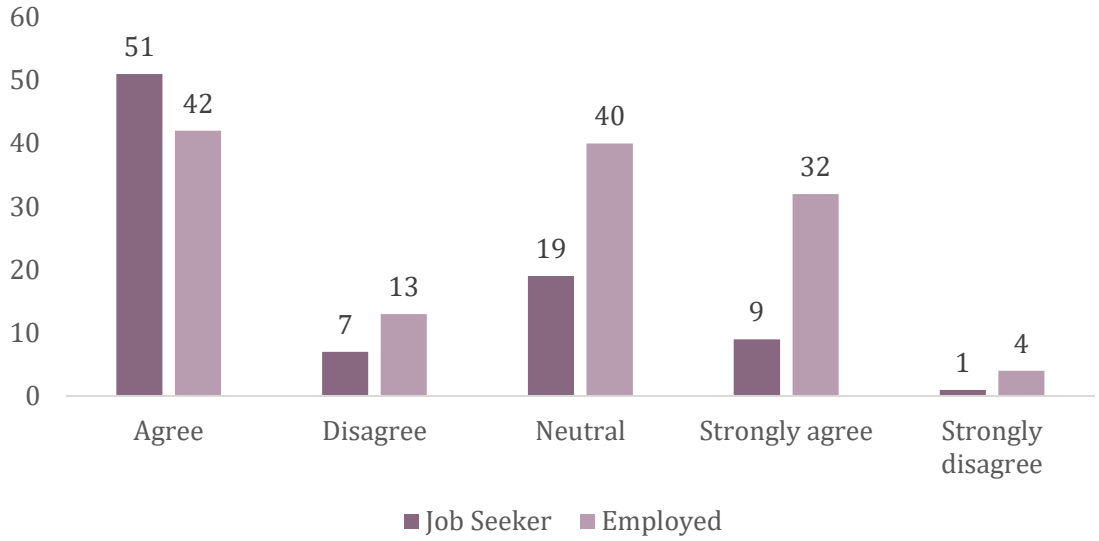
Figure 91: Influence of the Institute on Unemployment



Source: Authors' calculations.

4. Participation in Extracurricular and Co-curricular Activities: Participation in extracurricular activities could reflect soft skills and leadership qualities, making it relevant for predicting employment outcomes. Involvement in extracurricular activities was found to be a potential factor influencing personal and professional development, which can impact employment success (Figure 92).

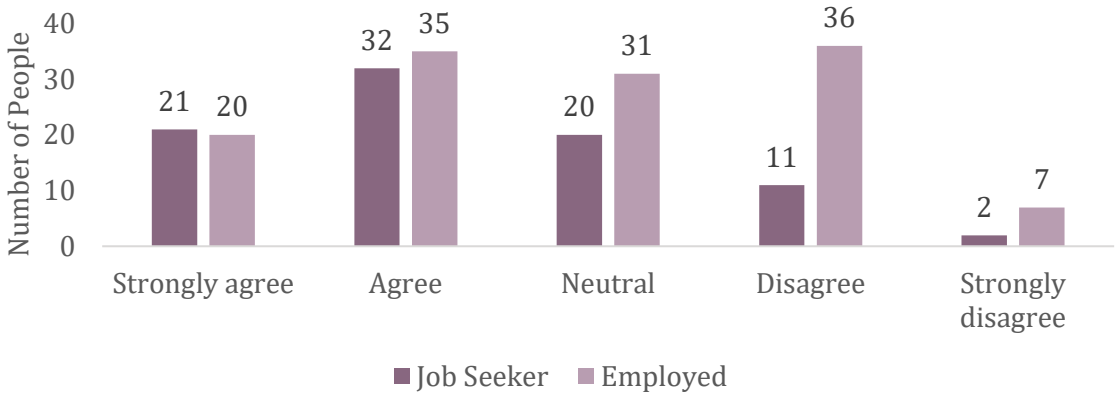
Figure 92: Role of Extracurricular Activities in Employment Success



Source: Authors' calculations.

5. Market Industry Job Availability: Job market conditions are a critical factor in unemployment predictions. Machine learning models found this feature to be highly relevant (Figure 93). The availability of jobs in specific industries directly affects unemployment rates as it determines the demand for certain skill sets.

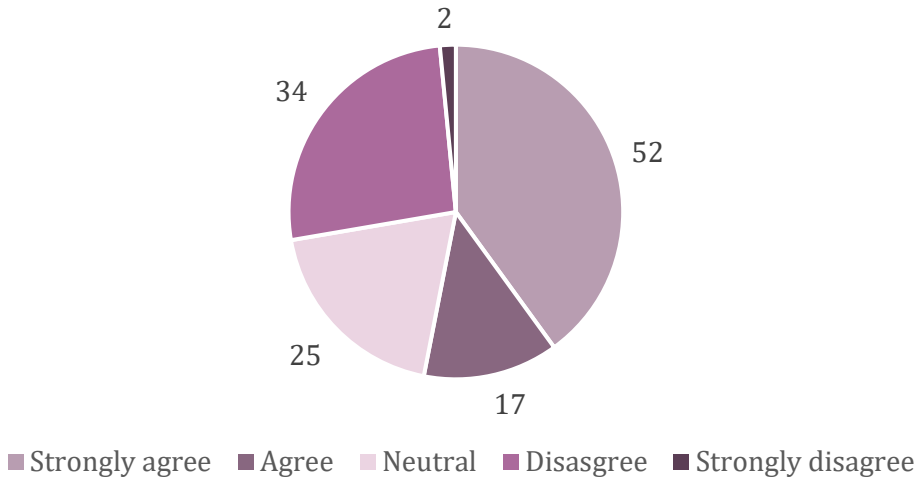
Figure 93: Role of Job Availability in Unemployment



Source: Authors' calculations.

6. English Language Proficiency: Proficiency in English can be relevant, especially in global job markets where English is widely used as evident in Figure 94. Machine learning models found this feature important. English language skills have become increasingly important in international business and industries that require cross-cultural communication.

Figure 94: Role of English Language Proficiency in Employment Success



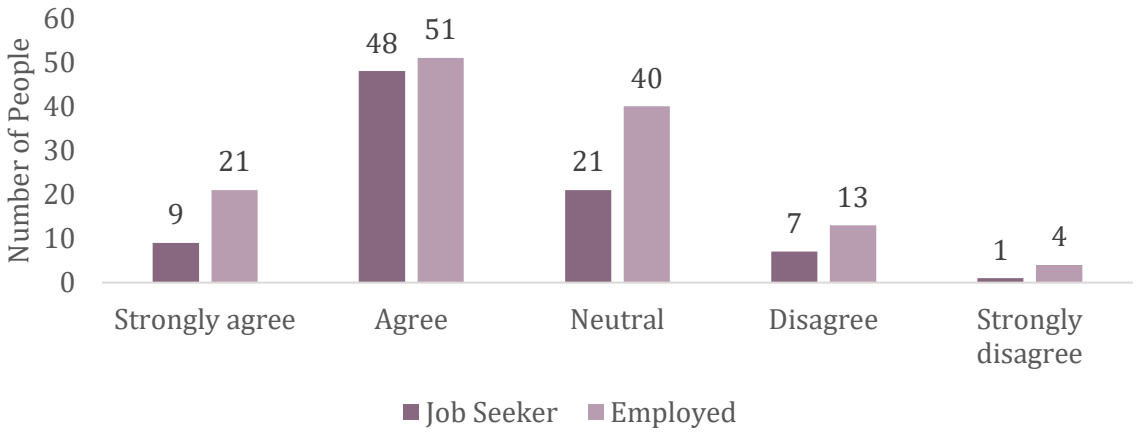
Source: Authors' calculations.

7. University Environment for Learning: The quality of the learning environment indirectly affects employability by influencing educational outcomes. Machine learning models can consider this feature. A conducive learning environment can contribute to a student's overall development and preparation for the job market as evident from Figure 95.

8. Facilities and Resources: Well-furnished and equipped facilities may indirectly influence employment by enhancing the quality of education. Machine learning models might consider this feature. Access to quality facilities and resources can improve the educational experience, potentially leading to better employment outcomes (Figure 96).

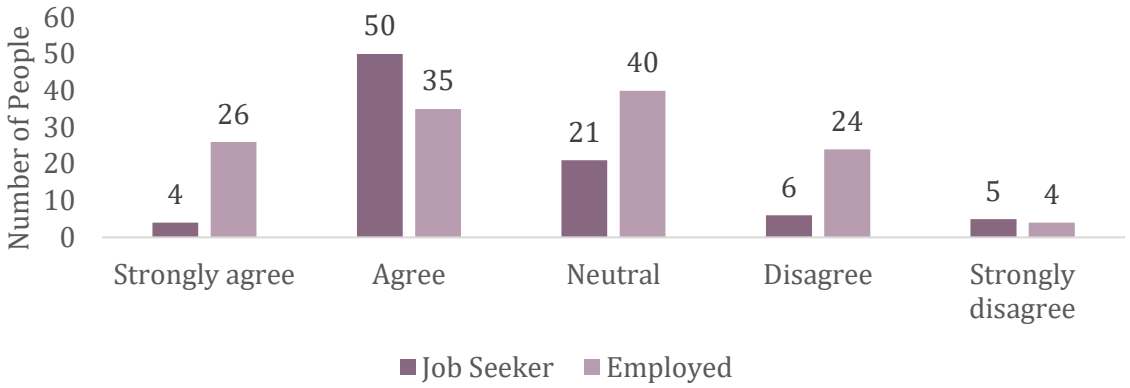
9. Institute Reputation: An institute's overall perception and reputation can be relevant if it affects graduates' job opportunities. Machine learning models may find this feature important. An institute's reputation can significantly impact an employee's ability as employers often associate quality education with reputable institutions (Figure 97).

Figure 95: Role of University Environment in Learning and Employment Success



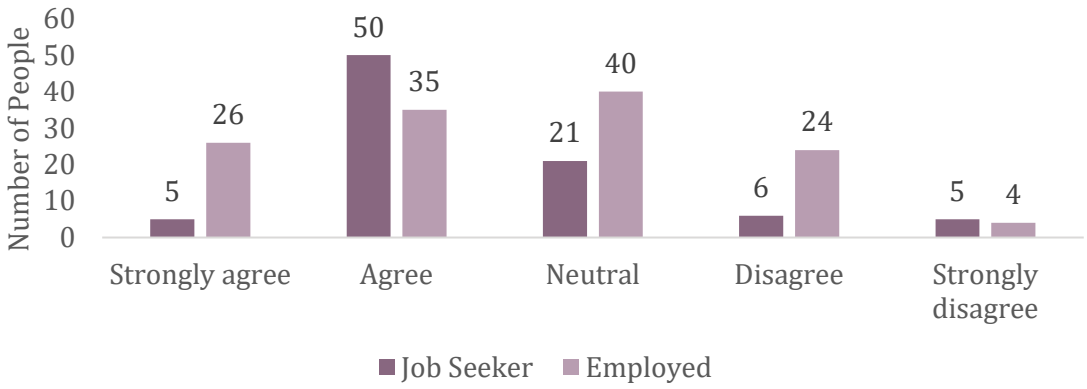
Source: Authors' calculations.

Figure 96: Role of Well-Equipped Facilities in Employment Success



Source: Authors' calculations.

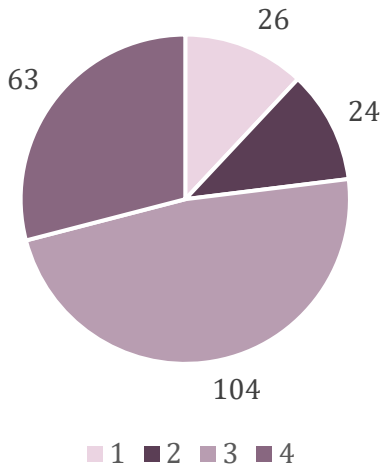
Figure 97: Role of the Reputation of the Institute in Getting a Job



Source: Authors' calculations.

10. Gender: Gender can be an important feature in employment predictions due to gender-related disparities in certain job markets. Machine learning models should find this feature relevant. Gender plays a critical role in employment outcomes as witnessed in Figure 98, with gender-based discrimination and societal expectations influencing employment opportunities and wages.

Figure 98: Role of Gender in Getting a Job



Source: Authors' calculations.

Conclusion

Machine learning focuses on the development of algorithms and statistical models that enable computers to learn and make predictions or decisions without being explicitly programmed. Machine learning systems leverage data to automatically learn and adapt from experience. Unsupervised learning is a machine learning technique in which the algorithm learns from unlabelled data. Machine learning plays a significant role in analyzing the reasons for unemployment by providing valuable insights from vast and complex datasets. It enables them to develop effective strategies to address this pressing societal issue. Machine learning can develop early warning systems for labour market shifts. Governments can use machine learning to tailor unemployment policies and support programmes based on the unique needs and challenges faced by specific populations. Ensemble methods were used for this research. Bagging, which is a type of ensemble method, works by employing a process known as bootstrapping to create several subsets of the original training data. An unemployment survey was designed. Various questions, such as employment status, educational institute, education level, age, etc., were asked in the survey. Data was collected from 217 alumni. It can be observed from the above comparison that the weighted average of bagging with random forest outperformed the weighted average of neural networks in all metrics.

6. QUALITATIVE DATA ANALYSIS

The purpose of this qualitative study is to investigate the factors which are impeding the employability of engineering graduates in the job market. Another purpose was to look into the current educational system and outline the gaps in terms of quality of education and provision of skills to engineering graduates by making use of the experiences of the key stakeholders including engineering students, alumni, academia (vice-chancellors, deans, directors, career counsellors, faculty), civil society, and industry personnel. The qualitative aspect helped to assess the experiences of the graduates in terms of difficulties they face in the job market as well as the perspective of the employers and would assist in designing practices which could help overcome these barriers.

Sampling: The selection criteria for the interviews were final-year engineering students, alumni/fresh graduates who were job seekers or who had been employed, faculty teaching in engineering programs, administrative personnel (vice-chancellors, deans, directors, and career counsellors), members of the civil society engaged with academia and industry both, and industry representatives. The sample was selected through the purposive sampling technique.

Data Collection: An open-ended interview schedule was developed for conducting the interviews consisting of 5-6 broad questions to be asked of all the participants. The participants were contacted first requesting their permission to participate and a suitable time was arranged. The interviews were conducted face-to-face and explicit verbal and written consent was obtained from the participants. A total of 30 interviews were conducted.

Data Analysis: Each interview was audio recorded and then transcribed to Microsoft Word. The transcribing was done on the completion of each interview simultaneously.

Table 18: Summary of Themes and Sub-themes

Quality of education	Need to introduce new courses/update courses from time to time according to current needs of the industry
	More focus on theoretical content rather than practical/project-based learning
	Teaching methodology and teacher practices
	Lack of updated laboratory technologies in the university
Relevance of education	Need to develop better soft skills and communication skills
	Ignorance of professional skills and lack of training
	More provisions for project-based learning and internships needed
Other factors	Limited job opportunities
	Employers' expectations from graduates
	Focus on CGPA/grades in education and job hiring
	Reference/family background matters in job
	Proficiency in English speaking is a plus
	Reputation and significance of the university for job
	Gender discrimination in hiring
	Collaboration with industry personnel to be included in academia
	Provision of industry experience to the faculty

Thematic analysis was carried out to create codes and elicit themes and subthemes from the data. A total of 30 interviews were conducted and transcription of interviews was completed. Data saturation was reached after 34 interviews as no new themes were emerging, hence the data collection was stopped. The following themes and subthemes were generated from the data.

The number of in-depth interviews carried out in each category are:

- Senior year Students = 6
- Alumni/fresh graduate/job seeker = 5

- HEI administration = 8
- Engineering faculty = 5
- Civil Society = 5
- Industry = 5

Quality of Education

Need to introduce new courses/update courses from time to time according to current needs of the industry

Nearly all the interviewees, be they graduates, teachers, administrative officers, or employers, highlighted the need to update the courses regularly and with changing trends globally to keep up with international standards. A member of the industry asked, *Are we producing engineers who are updated with international studies? Is our education updated? Would an engineer from our university be fit for a job abroad? Would he require experience or would he need to take the education again? Our bachelor is not accepted as a bachelor abroad. We need to update our quality of education. We need to update our courses. We have to bring these to international and current standards.*

A member from civil society working with industry questioned the current courses being taught stressing heavily on the need to improve the quality of education. He said: *Engineering university produces engineers and medical universities produce doctors but what matters is the quality of education. Are you still teaching them the courses that were being taught 10 years ago or are you teaching them something new? For instance, some days ago, we got a demand for plumbers in Korea, but we did not have the qualified labour that would fit their requirements. Are we producing engineers who are updated with international studies? Is our education updated? Would an engineer from our university be fit for a job abroad? Would he require experience or would he need to take the education again? Our bachelor is not accepted as a bachelor abroad. We need to update our quality of education. We need to update our courses. We have to bring these to international and current standards.*

Most of the final-year students and alumni complained that they were being taught the courses which their seniors studied years back and there was no change in textbooks and courses with current industry trends.

I really don't think that the curriculum we are taught is good enough; right at the current moment I am in the final semester and I really don't feel good about myself because the course we have studied up till now is a little bit outdated and we already know that industry and technology are both evolving rapidly. And after studying such an outdated course if you go to compete for the modern technology in the modern industry, you can't do that. there's a gap. We've been focusing on conventional things which don't get used these days. We don't study the modern technology. We are studying those old textbooks which were used by people years back.

More focus on theoretical content rather than practical/project-based learning

Almost all the students and graduates shared the concern about not having a balance between theory and practical ratio during engineering degree years. As it is said, knowledge is not enough without knowing how to apply it. According to an alumna/alumnus:

I had some experience collaborating with automotive engineers from the UK and other countries so I have an experience of what they study and what we study. So, according to that perspective, we are spending more time on the fundamentals of things or on what happened on a particular engine 200 years back rather than what is

happening in the world now in engineering. We spend less time learning how to do things and just focus on what. I think there should be a responsible balance in both.

Alumni showed their dissatisfaction with their quality of education for not having ample chances during the degree programme to apply theoretical knowledge through ample hands-on practice opportunities. One of them said:

The weakness of our programme is that we learn software work and its coding, it also depends on students whether they want to learn or not but it should be taught more with hands-on practice. Although we have seen many software in four years of the engineering programme, there are one or two in which hands-on practice is provided.

A senior professor and chairperson of an engineering department also pointed out this flaw of not equipping the students with ample practical/hands-on experience, which leaves a gap in their training.

In this matter, I'll say that the technical knowledge we give is the experimental representation of proving the theory we're studying. But it has no connection to the industry or the practical field. Unfortunately, this is the biggest flaw of the engineering institution that we don't prepare the students for industry.

Teaching methodology and teacher practices

Teaching and learning are two inseparable aspects of quality education. Viewpoints of all the participants especially students and alumni were obtained about teaching practices, which led to mixed feedback. Overall, students and alumni showed satisfaction with a teacher who was actively engaged with students' learning. One alumni stated, *At the end of the semester, we got a teacher who taught us excellently, he prepared us for industry, he told us what is necessary for a job, what you can do, and he shared with us about what soft skills to acquire. I wish he had taught us some subjects in earlier semesters as well so that we could have prepared and groomed ourselves effectively. So, we got some good teachers and some normal ones. Overall, it was a mixture and a rollercoaster ride.*

Surprisingly, few teachers also took the responsibility for not producing quality graduates stating various shortcomings of teaching in general.

I think there is a fault at both ends. When we offer skills without ensuring that all students acquire them and without ensuring student participation, a university cannot be effective. When a teacher assigns presentations to students and divides them into groups but does not sit and listen as the students present or when a teacher gives FYPs but does not evaluate them correctly, and when there is no proper evaluation system in place, the university department is at fault. When numerous student seminars are planned but the department head and other faculty members do not cooperate and/or do not show interest and involvement, it is the department head's fault. Consequently, there will be no student learning. Therefore, student and faculty members' participation is crucial.

Another teacher focused on the need for need-based training to polish the skills of faculty and equip them with effective pedagogical skills.

I think there are many deficiencies. I think we need as many trainers and training programmes as possible. Students will only learn what they are being taught in their classrooms or from their instructors. The trainers or instructors should be experts in their fields and not just deliver what is in a course or something that is in books or curricula. There should be special training for the faculty which should be done often.

Another viewpoint which came out was the benefit of having a faculty member with some relevant industry experience as participants thought that such teachers could bridge the industry-academia gap in some ways. A student pointed out:

I have noticed that those professors who have industry experience have different teaching methods and what we learn from them is different. We can also get insider tips and hacks from them which they provide more easily than those who do not have industry experience. Otherwise, we do what we call in general terms cramming-based study. Yes, the concepts are understood and clarified, but their application and where to implement them, that is very hard for us to figure out.

A vice-chancellor also pointed out,

Look, no offence to my faculty members, but I personally feel that someone who has never worked in the industry himself, how will he be able to prepare students for the industry, and also be able to do such research projects which can be applied in the industry.

Lack of updated laboratory technologies in the university

The application of science to industry and/or everyday life issues requires hands-on practice in addition to theory. While theory forms the core of classroom learning, hands-on practicum leads to applied learning that can only be practised and achieved in a physical laboratory. It was a common consensus among all stakeholders we interviewed that there needs to be a serious focus on practical learning which the engineering programs are lagging in.

I feel practical education is being provided in many institutions but there is no practical aspect of it which is in the form of internships and otherwise in the form of lab work and hands-on training. In this regard, I feel that according to the international standard or the requirement of the industry, this is much more needed.

An alumnus mentioned:

To be a part of the UET Mechanical Engineering department is something to be proud of. I believe that the UET Lahore labs are well equipped with the latest market trends, but there were some labs in which some of the apparatus dated back to 1998 that we used. If we talk about instrumentation and control lab, it was quite an old and outdated apparatus that we were working on. So, sadly its syllabus was also from 1997-98 that we were studying in 2022. So these are some things.

Relevance of Education

Need to develop better soft skills and communication skills

There was a reasonable degree of agreement amongst all the interviewees about the significance of soft skills once the graduate applies for a job or enters the job market. Where employers showed their dissatisfaction with the skills graduates possess, graduates complained of not being given enough training in soft skills. A graduate cited:

I understand that soft skills are needed and a lot of work is needed for them because, in general, soft skills are especially ignored in institutions and only subject knowledge and practical knowledge are considered important whereas it is obvious that soft skills are needed more than practical skills.

Another alumnus commented:

I don't think your technical skills are often used because it all comes down to teamwork and leadership and such things. I am also lacking in these skills and I learnt these after my graduation. We failed to learn things like management skills and teamwork collaboration. I felt this gap by working in teams. I think if in university we had

worked as a team and our teachers helped us in conflicts and their resolution, it would have helped us on jobs as these are the real-life skills that you require in jobs. You could be the best person in terms of technical skills but if you don't know how to work in a team or if you don't know how to communicate well, then I don't think you'll be up to the mark in the job market.

Soft skills are qualities that enable graduates to interact effectively with others and are imperative for success in most careers. Employers put a lot of emphasis on soft and communication skills at the time of hiring as they want to make sure that the new employee will work well with others. An employer commented:

Foremost, as I told you earlier, in a survey conducted in the United States in 2013, they found that communication skills came at the number one position. Good body language, confidence, attitude, and a grip on technical knowledge also play an important role as you have to run a business. So, all these parameters are very important. So, if they are combined by any means, they will become the best professional.

However, a chairperson of the engineering department emphasised the significance of soft skills while blaming administrative issues and faculty understanding for not being able to introduce them so far in classes.

There are no soft skills in curriculum design. I have tried so much to launch a course on personal development in the engineering department but there are so many hurdles to be faced. Our faculty isn't at that level to understand the importance of soft skills. Communication, time management, and anger management's effects on the work should be understood by others. The problem is that it is our faculty that does not understand it. The engineering field is facing problems in the development of soft skills.

Ignorance of professional skills and lack of training

Often the common issue is the rejection of an applicant at the first stage of the application form. During the interviews, graduates reported ignorance of where and how to apply, while employers mentioned issues like spelling mistakes and not being able to present themselves well through CVs and skill-based questions. An alumnus mentioned:

Most students don't even know which posts should they be applying for. They seem to be applying everywhere. Hands-on experience helps in knowing if I have an interest and aptitude for the specific work or not when I have had experience of particular practice during university courses. For this, workshops and interactive sessions can be arranged because most of the time we don't know where to apply and what employers want from us. Job fairs should also be arranged for this.

Nearly all the graduates recalled having no exposure to interview skills during their engineering studies. Many reported having a lack of confidence and interview techniques and being unable to present them effectively.

I have given a lot of interviews but I do not know what they actually want or demand from me. We think that the questions interviewers ask randomly but in fact there are a lot of things running in their minds. I fail to present myself well. Now I have realised all this after giving a lot of interviews. All these things should be taught to the students.

The employers also highlighted the interview as a significant step in hiring and rated good interview and communication skills extremely important.

How the interviewee responds to the questions of the interviewer reveals everything about him or her. I could judge the participant after one or two questions and assess what kind of personality he or she has. Let's say I ask the participant, "Why do you want to join this company?" He responds that he is unemployed, wants to get a job, needs need money, you know, and to feed his family, so he wants to join this company. That is not the answer I'm looking for from a job seeker.

Students had their perspective on professional skills and thought that the university should train them for these. A student commented:

We were taught technical writing and presentation skills subjects in the 3rd semester, but these subjects should be taught in the 6th or 7th semester so that students are well aware of what they should write in a CV or resume. And we should be guided on how to use job-seeking platforms, and how to approach officials of big companies because we are not being told about these things.

Other Factors

More provisions for project-based learning and internships needed

Project-based learning is the most important learning method of an engineering degree programme that motivates future engineers and inculcates learning by engaging them in real-world projects. Project-based learning as well as internships in industry have been seen to be beneficial for all stakeholders including students, educational institutions, and industry. However, alumni, students, administration and employers significantly considered it a major shortcoming of the engineering programme.

I want to say that of course some of our institutions provide very good education but in other institutions, according to my understanding, there is a lot of variation. Which, of course, includes your council and other factors that ensure quality. They are imparting knowledge to the students in a good way and the only thing that is lacking is the practical side. I feel practical education is being provided in many institutions but there is no practical aspect of it which is in the form of internships and otherwise in the form of lab work and hands-on training. And, in this regard, I feel that according to the international standards or the requirements of the industry, this is much more needed.

Project-based learning not only enables the students to learn deeply but also develops essential employability skills in them by letting them participate in real-world projects and gain experience.

Sadly, I would say the quality of education given is not good enough to help you in finding a job. The reason behind this is that we are only taught technical things in engineering, while practical knowledge isn't something that we think an engineering graduate should be equipped with. I believe that you should be taught technical knowledge for 3 years and there should be implementation of practical knowledge for at least 1 year for engineering undergraduate students because when our graduates go into the market, they know nothing about the implementation of the technical things they have studied.

Limited job opportunities

The lack of jobs and the grave situation of graduate employability is currently the most important cause of concern for the Government of Pakistan. Our interviews with all the stakeholders identified not having sufficient job opportunities for engineering graduates as the main reason behind high unemployment ratios. An alumnus cited:

First of all, I think in the Pakistani market we have very limited jobs. Top companies hire a maximum of 3 to 4 engineers for a job. If we look at the job opportunities in these companies and the graduation rate of engineering students from different universities, only a few graduates have these jobs. So, the first factor is the unavailability of jobs in the job market.

Another one drew attention to the issue of graduates changing their career paths:

Job opportunities are not available for engineering graduates according to their graduation rate. At some point, they

need to change their field and although the government has invested in them, if they change their field, it's a waste of government investment. Job opportunities are too limited in Pakistan. A few available job opportunities, they hire top students and the remaining ones either change their field or face other problems like this. That's all.

The participants also drew attention to the economic stability and discussed that it was not only causing unemployment but also underemployment. Also, few of the engineers then totally change their field of work which is all a loss for the education system. *Jobs are too few. The engineering graduates are looking for jobs in other sectors because of, as you said, the economic and political instability. When we train our graduates, we should train them to go and work in an industry; all of them just want to have an office job. I think they don't get enough opportunities to work in their field. As you have seen, I have interviewed engineer graduates for the position of junior clerk and a few of them were NUST graduates, with an MSc in electrical engineering, but they are appearing for a grade 8 or 9 position. So, look at the situation, they are not able to find a job. Although we are producing a very small number of graduates, you can see a lot of graduates in civil services.*

Employers' expectations from graduates

Nearly all the industry representatives had a unanimous approach to hiring graduates, i.e., they hired those graduates who seemed to be a productive addition to the company. Candidates who come for the interview without sufficient research about the company and seem to have a lack of passion are not shortlisted for the next stage.

"We want to have somebody positive, proactive and who wants to take initiative or wants to do something out of the box and is not like that person, you know, who says why should I do this because this is not in my job description. We expect him or her to take a step forward and contribute something. These are the things we look for apart from, of course, technical knowledge and other skills.

Another employer shared their thoughts:

An entrepreneur or an industrialist just requires productivity. What matters to me is that if I hire an engineer did he/she cut the cost of my chemical production? Did he/she improve the quality of my finished goods? Did he/she look for a second source for the raw materials that I use? Did he make me cost-competitive or not? The things I require are how does he increase my productivity. If he increases my productivity, decreases my cost, opens avenues of raw materials for me, and reduces the consumption of chemicals and raw materials, then this is what I want.

Employers want to hire people whose vision aligns with their company. They want to hire those who can work long-term for it, play their role in the advancement of the company, and do their work effectively. A participant engaged with both academia and industry pointed out:

It is our responsibility to train the fresh graduates. The issue is the movement from one industry to another. Some students keep on moving from one industry to another. An entrepreneur has invested his time and money in an engineer and then that engineer switches to another industry after 3 months because of a low salary. This is why the entrepreneurs of the industries teach less. But if an experienced engineer is training fresh graduates then the graduates get a chance to get a job there.

Focus on CGPA/grades in education and job hiring

Grades are definitely important when it comes to forming the first impression of a graduate but they are not the true reflection of the quality of an engineering graduate. Our stakeholders believed that grades/CGPA are important but not a definite determinant of employability. A member of a civil society commented:

I personally don't think that having a high CGPA means you'll succeed in your practical life. What you have learnt

and how you implement what you have learnt is more important. Your studies do count but practical experience and the different environments of the industry help you in learning a lot. Yes, education is one of the factors but it is not the only factor. I do not think that if a student has secured a 4 CGPA, he/she is a successful human being, entrepreneur, or employee.

This opinion was also supported by a job-seeking engineering graduate who said:

If I had a low CGPA but had something else to compensate for it, it might work for me. If a person has a low CGPA but he has a lot of experience and he has managed a lot of teams in addition he has good communication skills and he is more suitable for the job as compared to the one who has more CGPA, the company will ultimately prefer him.

Grades do not truly reflect the professional skills of a candidate and hence it is not a deciding factor for hiring someone in the industry. An educationist mentioned:

CGPA is absolutely reflective of the scholastic capability of the student; there's definitely no doubt about that. But it's not an indicator of the success a student will have as a professional because GPA is measured based on exams and in our culture we still test students on memory rather than testing them on skills to apply knowledge to solve a problem. So, the reproduction of information is tested. But when they have to go into the industry, teamwork, critical thinking, problem-solving skills, and skills to identify the cause of a problem matter more; analytic skills that mostly are not reflected in CGPA.

Reference/family background matters in job

Family background, references, and linkages with the job hiring place do play a role in getting a job in Pakistan but they are not a deciding factor. The participants shared mixed opinions. Although the majority thought that it affects the prospects of a candidate, it does not guarantee a job.

The merit matters. Now, things have changed. If you have the capacity, capability, and passion to do work then that will be recognised by the people who might be sitting over there on the selection board. And of course, they are the experts in that particular area.

Another perspective was that even if it gets you a job, sustaining that position and/or promotion could not be attained through a reference only.

It is not necessary that if you come from a strong family background and get a job because of it, you could continue working smoothly at some high-level posts. Your performance and attitude matter to continue your job successfully at a higher post.

An interesting disparity was observed between the opinions of students/alumni and other stakeholders as the former had the perspective that family background or some reference is preferred at the time of hiring, whereas the latter thought that a capable graduate would eventually be selected. A graduate commented:

I'll share my personal example. When I applied for an internship on a merit basis, I got rejected, but as soon as I brought any kind of reference they instantly hired me.

Proficiency in English speaking is a plus

English is a widely spoken and used language and proficiency in it is observed to make an impact in office-level communication, meetings, and carrying out many tasks. However, as engineering-level jobs can be office-based and field-related, it is not considered an essential need for job search and hiring. The employers prefer someone with overall good communication skills rather than just English language proficiency.

It also depends on the job description like what kind of a job you are searching for. You have to consider the stakeholders you will have to deal with. But it is a life skill. You should have English fluency. It is almost counted as a soft skill. It is important. You need to be able to communicate if you are said to do so.

However, the alumni and the students considered it to be an integral factor in employability.

English fluency is crucial. You are evaluated based on your ability to communicate effectively and transmit information. Because English is an international language, it is extremely important.

An alumnus mentioned,

It depends on the nature and scope of the job. In some cases, it is sufficient if you are good at your native language and can present your work confidently in your native language. But if you are working for an international company, you must be an expert in the English language.

Reputation and significance of the university for job

It is well understood that employers' interpretation of a university's name and reputation in a particular field of education plays a pivotal role in employability. Almost all the participants had a consensus that the reputation of a university does have a positive impact on the interview and the perception of the employer about the graduate. An industry representative said:

As a result of my experience in this field, I've discovered that when you apply to top IT companies that pay well, there are filters. They have conducted research and discovered that top-performing students at top-ranked universities are more efficient than other students because they are able to learn how to operate in an industry and do well there with ease. These IT companies prefer these students, so it has a huge role.

Though it is an added advantage when it comes to employability trends, interview and graduate capability is what makes the real difference in the transition from classroom to workplace.

An alumnus said:

Definitely, if your university's reputation is good, then obviously you have an edge and as there are fewer jobs and more engineers, so obviously they would have some criteria; they already would have some idea about hiring the engineers and in this regard they also consider university reputation. And if you're not from a well-reputed university but are capable enough and you can prove yourself, then there are no barriers.

Participants were also asked if studying at a private or a public sector university makes a difference, the feedback was more in favour of public sector universities other than a few exceptions.

"Here comes the role of faculty; if you get a good faculty, for example, the UMT, which is a private university, is a good university for engineering. LUMS is also offering engineering. But they have built their standard, so you can compare them to a good public university. Even I have seen the environment of LUMS, which is very research-oriented. They're offering research to undergrad students. So, ultimately the student will grow in this environment. But 90 per cent of our private universities have very low standards. I went to visit many institutions as an expert, so I have witnessed this. I have reviewed them in depth. So, 90 per cent of the private universities have very low standards, but there are some with good standards.

Another civil society high-ranked official who has been engaged with both public and private sector universities, as well as industry, pointed out:

See, public sector universities in the engineering field are very high-calibre institutions in Pakistan. But we do have certain problems and one of the problems is the lack of flexibility that it becomes far too prescriptive and doesn't leave enough room in the curriculum for innovations and allowance as the market demands change more.

Gender discrimination in hiring

Gender discrimination in the field of engineering was observed as one of the significant findings during the interviews with all the stakeholders in the field of engineering. Although times are changing, the graduates, as well as the employers, commented that for on-site/infield jobs in remote areas, men were preferred over women.

The graduates, whether males or females, pointed out gender bias to a certain extent through their experience.

A male alumnus commented:

Mostly women are considered for sectors like HR and finance if you go into any sector; you would mostly encounter women in these areas. But when you talk about production, quality, and manufacturing, you can mostly see male dominance there. So, yes, this is a factor that males dominate industry or any other organisation.

A female job seeker engineer shared her thoughts in the following words:

I applied for an internship in industry but there were 350 candidates for 5 seats. They shortlisted candidates for interviews because it's difficult to interview too many candidates for a few posts. They forwarded a list of 26 candidates in which males were given preference of course. It's clear that it's about technical skills and I think on the industry side, it becomes quite difficult for females to work. Being female, and the side at which posting should take place, females are not preferred there. As I mentioned, power is taught in our course but it's not that beneficial for us because males are mostly preferred to work in industry.

The administration also thought that although discrimination had been reduced, it was not nonexistent when it came to hiring. It was mentioned:

Even if we see our industry of Pakistan steel, I don't think any female is working there.

Lab work and libraries have few females but not in the field and production floor.

So, according to the Pakistani environment, there are fewer chances of hiring females. Because the norms and values are different from America. So, we need to design a separate system for industries and nobody is ready to invest in that system. So I don't think this is possible in the near future.

An interesting finding was that women engineers shared that although they had certain preferences in job selection, that included considering moving to industry or on-site work if there were no safety concerns.

So we will apply for a job first and then look at whether it is suitable for us to go into an industrial field. We would also see if the environment is comfortable for us as females.

Another student shared:

First of all, I will see how much is the female contribution there, and, secondly, how are they promoting women. After that, we will go to the place of employment and find out ourselves as female employees working there are better able to tell us about their survival.

However, society has certain gender stereotypes which were observed during interviews with the participants who were men in hiring positions and they shared their concerns about them.

Yes, it's a male-dominated society. We should encourage women. They make up about 52 per cent of the population. The number of men is decreasing and that of women is increasing, so ultimately more women will be engineers. It will take time for men to accept them, they can also work as much as men can and are also capable as much as men are.

Collaboration with Industry

Interviews conducted with higher-level administration focused on stronger ties between industry and academia for better employability trends. There was unanimous agreement that industry personnel involvement in lectures and training could enhance the competency levels of the graduates and the gap with industry needed to be bridged. An academician said:

"If we include industry people in academics for lectures, students get the chance to interact with them, and then students get offers for internships in industry. They give lectures, they tell real stories about the industry, and how things work and their practical relevance. They talk about what's happening in the industry and what issues they are facing. They don't give lectures by consulting books or research papers, like we do.

Similarly, a suggestion of the professor of practice was brought up by a vice chancellor of a public sector university as to how a person who has worked in the industry for several years could benefit the students with his/her experience.

I have mentioned the term professor of practice several times which is common worldwide and it refers to a person who has worked in the industry for 30, 40, or 50 years and then he wants to teach. So, you make him a professor at a university. You know, that a person is working in the industry and if I tell him to come here and start artificial intelligence or some other work, the one who has worked in the industry himself, will come in and set up the department in his way.

Other than the involvement of industry in lectures and training, a suggestion of including them on the board of studies, curriculum development, and skill-building programmes was also given by people in administration and industry. Although this practice is implemented in some universities, it needs to be done more rigorously and seriously.

And generally, we talk about industry linkage which means that the people of the industry should be involved in the process of updating the syllabus and what skills are needed. You know such people should be present on your board of studies to guide you as to what kind of people the industry needs at this time and shape the syllabus accordingly. And then after that, they should also come to teach although as a visiting teacher.

However, administrators of engineering universities and chairpersons also mentioned how this policy had already been adopted by them and identified the benefits of this collaboration.

We are on board with industry for curriculum development and industry-based projects. This is inevitable right now for the existence of any kind of programme, especially an engineering programme, if you are not taking any consideration of the industry, you cannot grow yourself and your engineers will only have theoretical knowledge. So, they need to have a skill set and they must offer some good internships in the industries according to the requirements and application of the programme. So, we are improving it gradually; looking into our resources; we are doing maximum effort from our side.

Another participant also identified how the engagement of industry personnel in higher education institutions was under implementation.

Because of the policies of engineering counsel, we're making them members of the boards of study. Also, there is an

industry advisory board in every department to which relevant industry people are invited. Like the alumni who have 5-10 years' experience, they're also invited. They help in curriculum development. Aside from this, they also give us their suggestions regarding what is going on in the industry and what should we do. So we're taking their feedback.

Provision of industry experience to the faculty

It was highlighted by several participants that the faculty teaching in engineering programmes had academic expertise and knowledge but lacked industrial experience. Hence, most of the lectures and assignments focussed on theoretical solutions.

I personally feel that how will a faculty member who has never worked in the industry himself be able to prepare students for the industry? I want our faculty members to go and work in the industry for some time because if you go and work in a good multinational industry for a year, you will know how the industry works, you will build confidence working with them, and then when you will come back and, in a true sense, through academia-industry linkage will be able to make a good applied research project because, eventually, you have to come and do research.

It was pointed out by some administration personnel:

Pakistan is the only country where you're hiring assistant professors with zero industrial experience. How will you cover the gap between industry and academia when 80 to 90 per cent of your faculty hasn't ever seen the industry?

A representative from academia stressed the need to make things easier to modify to keep up with international standards,

I would like to make the syllabus very flexible because the world is changing very fast, so we should have the freedom to upgrade the syllabus according to the changing environment without too many formalities. You know, flexibility in terms of upgrading it as soon as possible.

Discussion

The employability situation for engineers in Pakistan is considered to be quite grave. According to a report by the PEC (2021), more than 100,000 engineers were unemployed in the country. According to these findings, many of the engineers who graduated in 2015. 2016 and 2017 were still job seekers date but there was no one to help them with this dilemma.

The first finding of the study is related to the quality of education, which includes curriculum, teaching practices, and a balance between theory and practice in the programme. It was a general observation that the curriculum needed to be revised more frequently according to global trends. There is no denying the fact that universities need to educate their students differently than they have been doing in the past. To prepare a graduate to meet the challenges of the fast-growing industry, the role of course contents, design, and teaching practices is extremely important (Hadgraft, 2017).

Another theme that came up was that quality education should keep a balance between theory and practice. Projects, laboratory experiments, hands-on practice and problem and project-based learning need to be made a substantial component of the curriculum. These are accepted as innovative and effective learning techniques especially for an engineer as they introduce the students to professional scenarios. A general recommendation for engineering programmes is to build curricula around the current industry trends and engineering practices. Technical skills are important but are not the priority of employers. Instead, they look for complex problem-solving to tackle the issues of the 21st century (Uziak, 2016).

The current job market trends need the graduates or job seekers to be competitive and well-equipped with

technical skills as well as soft skills. One of the key findings of our qualitative interviews was the significance of soft skills for hiring and employability. It turned out that employers do not just look for technical or hard skills they want someone who possesses strong soft skills to be able to perform well in the job and workplace. Empirical evidence has shown soft skills to be imperative for job attainment as well as for a fulfilling and successful career. Employers seek graduates with a positive attitude, effective communication skills, good ethics and problem-solving and teamwork skills (Majid et al., 2019). According to a recent survey (NACE, 2020), 93 per cent of employers consider soft and hard skills equally. It is recommended to introduce soft skills to students early in the degree programmes to provide students with ample opportunities and time to hone their skills and improve their chances of employment.

The interviews also indicated a huge gap between the skills required for employability and the ones acquired by graduates. This gap is only widening day by day due to market demands, fast-changing technologies, and social requirements. Hence, a well-thought-out engineering curriculum is required that gives equal weight to technical and non-technical skills, effective teaching methodology and an emphasis on practical learning and industry linkages for the engineering students. Interview skills, language proficiency and good communication are some of the key employability skills which were mentioned by employers as top-rated skills that enhance employability. Based on empirical evidence from various studies, good communication is an important factor that is a key component of increasing chances of a job and also demonstrates chances of success in the chosen career (Krishnan, 2021).

Many other factors were also observed as determinants of the employability of engineering graduates. One of those factors is the graduate's academic performance which is indicated through the cumulative grade point average (CGPA). Most of the participants considered the CGPA to be an important factor of success but not the deciding factor. There have been contrasting studies and views on this. Soon et al., (2019) have indicated that the CGPA does not guarantee a job after graduation and many other factors play a role including the professional skills displayed by the candidate.

Similarly, mixed feedback was received on the role of having a strong family background or a strong reference. The students and job seekers considered it to be a strong factor which could help them get a job but the other stakeholders shared that having a strong reference was not a key determinant of a job. Hence, everyone thought of it as an influencing factor because of being a part and parcel of our society but now things are changing and merit is given preference.

Our study also looked at the impact of university reputation on the employability chances of a candidate and it was a unanimous opinion almost that it does play a key role. It influences the perception of employers and the name and ranking of an institution builds a degree of credibility for the graduate and increases their chances of employability (Bano & Vasantha, 2019). A study by Drydakis (2016) highlighted that graduates having degrees from top-tier universities received more interview calls and were offered better salaries as compared to the ones from lower-ranked universities.

Another theme that emerged during the study and was found to be a key determinant of employability was gender. It was highlighted by the alumni that preference is given to the male gender for certain jobs and organisations. It is a sad truth that the field of engineering has been dominated by men for years and years. Women are largely underrepresented in this field and according to a recent report by the World Economic Forum titled Future of Jobs (2023), only 11 per cent of the women had their share in engineering and architecture. Pakistan is also one of the countries with the highest gender gaps in the world. However, despite all the challenges for women, they have a strong role and achievements in their fields.

All the participants felt that there was an academia-industry gap which needed to be bridged. Collaboration with industry in terms of curriculum development, industry projects and visits, lectures and training by industry personnel, and also the provision of industry experience to the teaching faculty in the university was discussed

and emerged as a prominent theme. Collaboration between an engineering programme and industry is beneficial for students in many ways. It facilitates the graduates to acquire practical experience and knowledge before going into the workforce and also helps them apply their knowledge and technical as well as software skills to real-life problems, honing their problem-solving skills as well (Zainol Murad et al., 2006).

In general, different perspectives were discussed by different stakeholders. Two important perspectives which were shared by the students and alumni were that the curriculum being taught in the engineering programme needed to be updated according to the recent trends and needs of the industry. Graduates felt that conventional courses provide them the basic theoretical knowledge but when they try to apply it at work, that is not very helpful. There should be improvisations in the syllabus and old textbooks need to be replaced by ones which could equip them with modern technological grip.

The students and graduates also expressed their concerns about the lack of practical exposure at the university. They were aware of the significance of soft skills which are almost equally important as technical skills. It was expressed that they as students often underestimate the significance of communication skills, managerial tasks, and emotional intelligence, and it is the responsibility of the universities to focus equally on skill acquisition and train them effectively. The industrialists strongly emphasised that they do not just want degree-holders as their employees. They want employees who know how to work and whose work is relevant to their industry. They need skilled people as employees.

Another perspective by the employers was that they prefer graduates who have some work experience even if in the form of internships/placements. Also, they want to hire graduates who would add value to their workplace and show a certain degree of work understanding and workplace ethics. The administrative personnel have a mutual consensus on the collaboration between academia and industry. However, even the vice-chancellors expressed the desire to be given some flexibility/authority in terms of making reforms and bringing administrative changes. Being associated with public sector universities, they are bound by the rules and regulations of the Higher Education Commission and hence, every little change needs several approvals. The faculty also expressed their concern over the lengthy and difficult approvals if they require lab equipment. They could not at times do what they wished to because of being bound by standard syllabi.

7. CONCLUSION

This work examined the views and input of numerous stakeholders as it dug deep into the problem of unemployment among engineering graduates of Punjab's public sector universities and higher education institutions. The data was thoroughly analysed, both quantitatively and qualitatively, to identify the core of the issue and create policy recommendations. The implementation of these recommendations has the potential to revolutionise the curriculum, teaching methods, and employment opportunities for graduates.

This study underlines the importance of a responsive and adaptive educational ecosystem, as well as the value of input from many stakeholders. One of the research's strengths is its recognition of the importance of varied perspectives in promoting educational achievement. By welcoming opposing viewpoints, flaws in the educational ecosystem are identified and corrected, paving the way for ongoing improvement.

Several elements come into play during this research, including industry participation in academics, the importance of English proficiency for career prospects, the impact of teachers on student learning, and the need to update courses to meet industry expectations. This study highlighted the critical need for collaboration and creativity in the educational sector to solve the severe issue of unemployment among engineering graduates.

Student opinion is critical in determining the curriculum and courses given by educational institutions. However,

a great learning experience is driven by students' dedication and enthusiasm. Qualified and knowledgeable teachers, as well as their teaching approaches, play a critical part in creating a positive learning environment. Courses must be continually updated to reflect industry requirements and international standards. The value of soft skills and English proficiency for future job chances cannot be overemphasised.

Teachers' skills and credentials play an important role in shaping students' learning experiences. Exceptionally qualified instructors can significantly improve students' learning capacity. It is critical for maintaining rigorous standards and ensuring high-quality training. It is critical to close the gap between theoretical understanding and actual implementation. We also need to examine faculty members' perspectives on how successfully educational institutions enable and compensate teachers to establish a conducive learning environment. The collaboration between industry professionals and academia is crucial for the advancement of curriculum development and skill-building programs. It serves as a bridge between the theoretical knowledge taught in classrooms and the practical skills required in the industry. By involving industry experts in academia, students are provided with invaluable real-world insights, mentorship opportunities, and access to industry resources. This collaboration ensures that educational programs are aligned with current industry needs and trends, ultimately enhancing students' preparedness for the job market and increasing their employability. The incorporation of industry perspectives in education is not just beneficial, it is essential for the success of students in their future careers. Collaboration between industry professionals and academia is critical to the advancement of curriculum development and skill-building initiatives. It acts as a link between the theoretical knowledge taught in schools and the practical abilities needed in the workplace. By incorporating industry professionals in academia, students gain essential real-world experience, mentorship opportunities, and access to industry resources. This collaboration guarantees that educational programs are in line with current industry needs and trends, which improves students' job market preparation and employability. Incorporating industrial viewpoints into education is not only advantageous but also necessary for students' success in their future employment.

The following are the aggregate and determinants that this research has identified.

- The opening of the educational institute led to the supply-driven introduction of the engineering programme. The non-availability of jobs is prevalent, yet engineering programmes continue to open without industrial feedback. We found that institutes are far more optimistic about job placement than the actual situation. This has led to an expectation mismatch, threatening to further broaden the supply and demand divide.

- Lack of hands-on (psychomotor) activity is prevalent and identified as a major weakness among graduates. Given the lack of funds to purchase a workstation, careful planning is needed to increase psychomotor activity.

- Outcome-based education has standardised the curriculum, programme, and course learning outcome. However, soft skills, also a part of the programme learning outcomes, remain weak. Incorporation of relevant programme learning outcomes in the student society manifesto may lead to the development of soft skills.

- Women's participation in the labour force is limited to desk jobs despite the availability of the equipment to assist physically intensive tasks.

- Family background and socioeconomic factors are overwhelmingly recognised as important factors for job placement. But this factor, which is beyond one's control, can be countered by the reputation of the institute, which is another perception criterion that can assist a graduate.

- The industrialists strongly emphasised that they do not just want degree-holders as their employees. Instead, they want employees who know how to work and whose work is relevant to their industry. They

need skilled people as employees. Another perspective by the employers was that they prefer graduates who have some work experience even if in the form of internship/placement.

To summarise, the need for feedback and the ongoing growth of educational experiences to match the demands of the labour market, policymaking, and implementation are critical. Educational institutions must adapt and grow to satisfy the requirements and expectations of both students and employers. Furthermore, there is a need to address gender discrepancies in the workforce and take into account characteristics like family background and socioeconomic situation in job placements.

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PART II

HUMAN CAPITAL & OPPORTUNITIES

Policy Briefs

NATURE, CAUSES, AND CONSEQUENCES OF YOUTH UNEMPLOYMENT IN BALOCHISTAN: AN EMPIRICAL ANALYSIS

Mohammad Ahsan Achakzai, Aymen Sajjad, and Muhammad Tariq Majeed

INTRODUCTION

Youth unemployment is a critical public policy issue in developing nations. However, there remains a scarcity of public policy research addressing this problem in the context of developing and emerging nations. In particular, there is a scarcity of research that examined the causes, nature, and consequences of youth unemployment in Balochistan, Pakistan. Accordingly, a study, on which this policy brief is based, examined the nature, causes, and consequences of youth unemployment in Balochistan. By engaging diverse stakeholders such as students, employers, policymakers, educators, and experts, the study tried to unveil the struggles faced by marginalised youth of Balochistan. It attempted to unearth the nature and root causes of youth unemployment, identify essential employment skills, and emphasise the role of government and public institutions in nurturing youth employment. The study delved into the underlying reasons for ineffective government interventions and critically analysed existing strategies to counter the crisis and the contextual framing of youth unemployment in Balochistan.

METHODOLOGY

To develop more in-depth insights into the youth unemployment phenomenon, the study utilised a mixed-methods approach to examine the natural causes and consequences of youth unemployment in Balochistan. It employed a pragmatism paradigm that integrates qualitative and quantitative techniques to develop in-depth insights into the youth unemployment issue in Balochistan. The research involved two phases. The initial phase collected survey data from 101 youth and 38 employers in Balochistan. The second phase conducted qualitative data collection in two stages. Short interviews were held with 31 youth and 8 employers from various districts, representing all ten universities in the province. Next, in-depth semi-structured interviews were conducted with 10 key informants, including senior university staff, government officials, policymakers, and international development agency members. The purposive snowballing technique was used for participant selection.

The interview guides were developed from an extensive review of emerging literature, focusing on policy debates and empirical work related to youth unemployment. Qualitative data was collected through recorded interviews and transcriptions, while quantitative data was gathered via adapted surveys. The youth survey was based on the International Labour Organization's 2009 school-to-work transition survey, with 54 questionnaire items, while the employer survey comprised 32 items.

Descriptive analysis was applied to survey data, and thematic analysis guided the qualitative data examination, following Braun and Clarke's guidelines. The analysis was conducted in three phases, exploring skill sets, technical knowledge requirements, and avenues for nurturing these skills at universities and through government intervention. Policy recommendations for addressing youth unemployment are developed based on interview findings.

To ensure research quality and strengthen the validity of research findings, a triangulation approach was adopted. The notion of triangulation involves integrating the findings via multiple sources of data collection from various sources and ensuring consistency of findings. Accordingly, the findings were based on the triangulation of interview and survey data, enhancing the credibility, transferability, and overall value of the research outcomes in the real-world context.

FINDINGS

The findings of this study provide in-depth insights into youth unemployment in Balochistan, combining quantitative analysis with qualitative insights. The findings are classified into nature, causes, and consequences of unemployment.

Nature of Unemployment

The study underscores a significant youth unemployment rate, with a substantial number of graduates remaining unemployed even a year after completing their education. This trend mirrors global concerns, highlighting the socio-economic consequences of high youth unemployment. Strikingly, rural-urban migration is prevalent, as rural youth seek better prospects in urban centers. Paradoxically, many perceive limited job prospects within Balochistan, revealing the absence of formal support networks, a common issue in developing economies. The analysis underscores a noticeable skills gap among graduates, with statistics indicating that 64% of job applicants are rejected due to poor writing skills and 67% due to insufficient technical skills. This skills mismatch underscores the urgency of interventions such as vocational training and curriculum alignment with industry requirements. The scarcity of jobs, as indicated by 80% of surveyed youth believing the Balochistan job market offers limited opportunities, is exacerbated by an underdeveloped industrial sector. These challenges drive migration and underemployment, with 80% of youth acknowledging this limited job market and migrating for better prospects. Retaining local talent emerges as a pivotal concern.

Causes of Unemployment

The quantitative analysis underscores the significant impact of a limited job market, with 80% of youth perceiving it as constricted. This intensified competition for jobs is exemplified by the migration trend, as 53% of respondents reported working in cities different from their hometowns, particularly among females (39%) compared to males (32%). A mismatch between education choices and job requirements further exacerbates the issue, as indicated by 67% of rejected job applicants lacking adequate technical skills and 64% having poor writing skills.

Qualitative exploration augments the understanding of these causes. The dearth of industrial development and a weak private sector contributed to limited job opportunities, driving a preference for government jobs. This inclination resonates with the fact that 81% of respondents believe a university degree is vital for a decent job, and 27% aspire to work in the public sector. Moreover, gender disparities hinder female employment due to cultural norms, aligning with global observations. The qualitative analysis also underscores how perceived corruption and unequal employment prospects amplify youth unemployment.

Consequences of Unemployment

The quantitative data highlights a pronounced NEET rate (Not in Employment, Education, or Training) in Balochistan, surpassing the national average. This signifies limited access to education and employment for a significant portion of youth. This aligns with previous research that underlines the impact of youth unemployment on educational and labour market outcomes. Gender disparities also emerge, with an employment-to-population ratio of 11.3 for females compared to 38.6 overall, echoing wider studies that address unequal employment opportunities.

The qualitative exploration delves into psychological and behavioural consequences. Unemployment imparts negative effects such as low morale, stress, dissatisfaction, and reduced self-confidence, paralleling prior research linking youth unemployment to mental health challenges.

Additionally, youth unemployment is linked to increased crime rates and social unrest in Balochistan. Frustrated youth may resort to criminal activities, aligning with global research that connects youth unemployment to social instability and criminal behaviour.

Brain drain emerges as another significant consequence, with talented youth migrating for better opportunities. This resonates with studies highlighting limited local prospects driving brain drain. Trust deficit between unemployed youth and the government also surfaces, mirroring prior research emphasizing the importance of effective policies and initiatives to rebuild trust in the system.

CONCLUSION AND KEY POLICY RECOMMENDATIONS

This study delves into the challenges surrounding youth unemployment in Balochistan and presents practical policy recommendations for government, policymakers, and stakeholders. A significant youth unemployment rate and rural-urban migration highlight the scarcity of job opportunities. Predominantly, graduates' skills gap and underdeveloped industries contribute to the problem. The importance of digital skills for employability is emphasized.

Causes of unemployment encompass a limited job market and an education-employment mismatch that hinders opportunities. Rural-urban migration intensifies competition. Weak private sectors and cultural norms perpetuate the problem, while corruption perceptions and gender disparities exacerbate it.

The consequences of youth unemployment align with existing literature. These encompass educational and mental health repercussions, social issues, and brain drain. The trust deficit between unemployed youth and the government also hampers solutions.

To address these challenges, a comprehensive and collaborative strategy is essential. Following are the key policy recommendations: Recommendations include promoting private sector engagement, gender-inclusive policies, career counselling, entrepreneurship, industry-academia linkages, and more. The goal is to unlock the region's potential, ensuring economic growth and social well-being. Following are the key policy recommendations:

1. Promote Private Sector Engagement: Encourage public-private partnerships and establish Special Economic Zones to attract investment and create jobs.

2. Gender-Inclusive Policies: Support female workforce participation through facilities and gender-responsive policies.

3. Career Counseling and Guidance: Strengthen career counselling, job fairs, and industry exposure for students.

4. Entrepreneurship and Soft Skills: Foster entrepreneurship and provide soft skills training for employability.

5. Industry-Academia Linkages: Connect academia with industry through seminars and guest speakers.

6. Decentralization and Inclusive Policies: Decentralize funds and prioritize underprivileged areas.

7. Development of Border Markets: Establish border markets to capitalize on cross-border trade.

8. Revise Education System: Offer relevant, market-driven education with technical and vocational skills.

9. Encourage Local Industry: Support small businesses for job creation.

10. Strengthen Policymaking: Involve stakeholders, especially youth, in policy development.

11. Address Brain Drain: Create attractive local opportunities to prevent talent migration.

12. Public-Private Initiatives: Encourage innovation in the coastal region.

13. Enhance Financial Literacy: Empower youth

with financial skills for entrepreneurship.

14. Promote Skill-based Education: Introduce practical training in early education.

15. These recommendations, when realized, hold the potential to combat youth unemployment, driving economic prosperity and overall well-being in Balochistan.

The study acknowledges limitations, such as potential biases in data and unexplored factors. The dynamic nature of the labour market necessitates ongoing policy adaptation and the lack of collaboration among researchers, policymakers, and stakeholders remains crucial for refining strategies.

SKILLED WOMEN'S SELF-EMPLOYABILITY AND TVET PROGRAMMES IN BALOCHISTAN

Nagina Gul, Niamat Ullah Baloch, and Mrestyal Khan

INTRODUCTION

This brief summarises and proposes policy recommendations on the relationship between Technical and Vocational Education and Training (TVET) investment and economic development with a focus on female entrepreneurs in Balochistan. The base study on which this policy brief is based addresses the gaps and controversies resulting from the empirical evidence on the conventional understanding of the role of competent women in driving economic development. The significant contributions of women to the growth of nations and societies are widely recognised. Working women, particularly female entrepreneurs, play a vital role in driving economic growth, generating employment opportunities, and fostering innovation within their respective countries. Worldwide, the number of working women, particularly female entrepreneurs, has increased.

A nation aspiring to transform its vocational system must critically assess its components and reconstruct them in alignment with national objectives. The objective of the study was to investigate the perspectives and aspirations of female TVET students in Balochistan concerning their current educational experiences and future career prospects.

TVET institutions face challenges in terms of adequate human resources and physical infrastructure to support their learning and training programmes despite undergoing structural changes and rapid expansion. While more students are receiving education, the demand for skilled workers continues to rise due to unforeseen economic disruptions. Thus, it can be speculated that enhancing self-employability among skilled women through TVET might lead to job creation. However, empirical evidence supporting this notion is scarce.

RESEARCH METHODOLOGY

The data for this study was collected from five TVET institutions situated in Quetta, Balochistan. A mixed methods research approach was adopted to examine the skilled women's self-employability and the impact of TVET programmes in Balochistan. Initially, five public and private TVET institutions were purposefully selected from the "BTEVTA" institutional ranking, which categorised them into diploma and certification courses. To ensure a representative sample, a systematic random sampling method was employed. The study covered various skill programmes, including the TVET regular course, CBT course, NAVTTC session, UNHCR session, and diplomas, ranging from a minimum six-month certification course to three diplomas. Individual visits were made to the respective institutions, and students were invited to participate, resulting in a total of 368 diploma and certificate holders being involved in this study.

Quantitative data for the RASTA project were collected through a self-administered questionnaire using a systematic random sampling method. Out of 420 questionnaires sent, 368 were completed (TVET enrolled and passed out students) for analysis. Both qualitative and quantitative data sources were utilised in this research to provide comprehensive insights. A total of 27 semi-structured interviews were conducted across three layers involving TVET female graduates, TVET skilled women

entrepreneurs, and experts.

KEY FINDINGS

Theme1: TVET Skilled Women Hands-on Skills

Data from the interviews and field notes indicated that TVET helps women maintain their families, enhance their quality of life, and participate actively in decision-making. The findings revealed the pivotal role of TVET in cultivating women's hands-on skills, rendering them adept in technical domains. This proficiency not only augments their employability but also underpins their entrepreneurial pursuits, enabling them to engage in ventures aligned with their acquired expertise. Concurrently, TVET emerges as an instrumental conduit for the development of entrepreneurial skills among skilled women. The assimilation of entrepreneurial acumen enables women to effectively navigate the complex landscape of business initiation and sustenance.

Theme2: TVET Skilled Women Entrepreneurship Skills

TVET programme also provides invaluable advice on how to launch a business. They advise the participants about how to work on a business idea and make the best use of the resources they have. Entrepreneurial skills needed to succeed in self-employment can undoubtedly be aided by entrepreneurship knowledge. Effective communication, decision-making, money management, marketing, and networking are a few examples of these abilities. The effectiveness of these skills in boosting self-employment capacity ultimately depends on the individual and the particular challenges they encounter during their entrepreneurial journey.

Theme 3: TVET: Entrepreneurship Skills and Skilled Women Empowerment

Entrepreneurial skills can be especially beneficial for housewives looking to contribute to the economy and increase their earning potential. The economic, psychological, and social empowerment of skilled women emerges as a pivotal outcome. This empowerment emanates from their augmented participation in entrepreneurial activities, resonating across familial and societal spheres. Skilled women are especially instrumental in poverty alleviation, engendering economic upliftment in their communities. Additionally, their influence extends to positively shaping the health and educational trajectories of their children, thereby fostering holistic social advancement. Moreover, the findings show an intrinsic link between TVET and the empowerment of women, which reverberates throughout economic, psychological, and social dimensions. It catalyses the dismantling of traditional gender roles, affording women enhanced agency in economic activities and augmenting their contributions to the wider societal fabric. This empowerment, in turn, fuels the propagation of gender equality principles by challenging normative paradigms.

Theme 4: Challenges in the Pursuit of Success: Barriers Faced by Skilled Women in Balochistan

Despite the transformative potential of TVET, a spectrum of challenges impedes the trajectory of women entrepreneurs. The dearth of formal education and managerial proficiency curtails their capacity to navigate the intricate facets of business operations. Moreover, constrained financial support further exacerbates their predicament, restraining their ability to actualise entrepreneurial ventures. These challenges are compounded by a lack of family support, suboptimal self-confidence, and diminished communicative competencies, which collectively engender a milieu of barriers.

Furthermore, a pronounced scarcity of women-owned small and medium enterprises (SMEs) is noted, indicative of prevailing disparities. The integration of entrepreneurship education within formal education systems is found to be inadequate, inhibiting the cultivation of an entrepreneurial mindset from an early educational juncture. An underlying theme underscored is the imperative of achieving work-family balance. The findings highlight the role of empowered women entrepreneurs as catalysts for transformative societal change. The attainment of equilibrium resonates beyond personal

spheres, contributing to the amelioration of gender disparities and the cultivation of progressive social paradigms.

CONCLUSION

In synthesis, the empirical findings yield a profound comprehension of the intricate interplay between TVET, skilled women, entrepreneurship, empowerment, and the corresponding challenges. Through the exploration of diverse themes, encompassing the influence of TVET on women's hands-on aptitude and entrepreneurship proficiencies, the pivotal role of empowerment and the propagation of gender parity, alongside the impediments faced by women entrepreneurs, the research underscores the multidimensional dynamics of this evolving landscape.

The study accentuates the transformative potential embedded in TVET as it equips skilled women with both technical proficiency and entrepreneurial prowess. This dual skill set not only amplifies their economic horizons but also contributes to their psychological and social empowerment. Furthermore, skilled women undertake a pivotal role in mitigating poverty, coupled with their capacity to positively impact the health and educational trajectories of their progeny, thereby radiating a ripple effect of societal enhancement.

RECOMMENDATIONS

These concise recommendations leverage research insights to tackle specific challenges faced by skilled women in Balochistan's TVET sector, fostering their empowerment and equitable participation in entrepreneurship. Based on the research findings within the context of Balochistan's TVET programmes and skilled women, the following evidence-based policy recommendations are proposed.

Comprehensive Entrepreneurship Education Integration:

- Develop a comprehensive framework to integrate entrepreneurship education within TVET programmes. This framework should include modules covering business planning, financial management, marketing strategies, and innovation.
- Collaborate with industry experts to ensure the curriculum aligns with current market demands and equips women with relevant entrepreneurial skills.

Targeted Financial Support Programmes:

- Establish financial support programmes specifically tailored to women entrepreneurs in the TVET sector.
- Create accessible and low-barrier microloan initiatives to provide women with startup capital for their businesses.
- Collaborate with financial institutions to design and implement specialised loan programmes that do not require traditional collateral but instead consider business viability and potential.

Gender-Responsive Mentorship Initiatives:

- Implement structured mentorship programmes that pair skilled women with experienced entrepreneurs or professionals. Promote successful entrepreneur role models from similar backgrounds who can guide women through the challenges of entrepreneurship.

Empowerment through Capacity Building:

- Develop and implement regular capacity-building workshops and training sessions to enhance women's managerial and communication skills.
- Focus on fostering self-confidence and effective communication strategies to help women overcome barriers.
- Collaborate with private sector entities, governmental agencies, and civil society organisations to create a supportive ecosystem for skilled women entrepreneurs.

Gender-Equality Promotion in TVET:

- Develop policies and guidelines to ensure equal access to TVET programmes for both genders.
- Implement awareness campaigns to challenge gender stereotypes and biases within TVET institutions.

Family Support Initiatives:

- Collaborate with community leaders and stakeholders to raise awareness about the importance of family support for women entrepreneurs. Establish support networks that assist in managing work-family balance.

Government Initiatives for Empowerment:

- Collaborate with government agencies to establish policies and initiatives that directly empower women economically, psychologically, and socially.
- Create programmes that recognise and celebrate the contributions of skilled women in poverty alleviation and societal betterment.

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The Research for Social Transformation and Advancement (RASTA) at the Pakistan Institute of Development Economics (PIDE) is the largest economics and public policy research grants programme in Pakistan. Its mission is to promote research culture and develop extensive network of academia and think tanks across Pakistan producing high-quality, evidence-based policy research to inform public policy processes. The Competitive Grants Programme (CGP) is the flagship initiative of RASTA under which research proposals are invited bi-annually on specific themes/topics decided by the Research Advisory Committee (RAC). Applications from all around Pakistan and abroad are invited through open competition and awards are decided by the RAC after a rigorous and transparent review process. Anyone with a research focus on Pakistan's public policy issues relevant to the CGP themes/topics of each round can participate and win the CGP award.

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