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HUMAN CAPITAL AND OPPORTUNITIES

Edited by Nadeem Javed & Faheem Jehangir Khan

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HUMAN CAPITAL AND OPPORTUNITIES

(Volume XXIV)

Edited by Nadeem Javaid & Faheem Jehangir Khan



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PART I

HUMAN CAPITAL AND OPPORTUNITIES

Research Papers



UNLOCKING SYNERGIES THROUGH PUBLIC VALUE CO-CREATION: A HOLISTIC EXAMINATION OF PUBLIC-PRIVATE PARTNERSHIPS IN PUNJAB'S EDUCATIONAL LANDSCAPE

Shabana Naveed¹, Madiha Rehman Farooqi², and Muhammad
Abdur Rehman³

ABSTRACT

This study evaluates the effectiveness of Public-Private Partnerships (PPPs) in addressing educational challenges in Punjab, Pakistan, focusing on access, equity, and quality. Despite Punjab's leadership in PPP-based reforms, over 7.8 million children remain out of school, and disparities in learning outcomes persist, particularly among marginalised groups. The study uses a mixed-methods approach, including qualitative data from interviews and focus group discussions, and quantitative analysis of enrolment trends and student performance. Findings indicate that while PPP initiatives, such as those by the Punjab Education Foundation (PEF) and Punjab Education Initiative Management Authority (PEIMA), have increased enrolments and achieved cost-effective outcomes in education, challenges related to equity, quality, and systemic inefficiencies remain significant. Issues of overcrowding, limited teacher qualifications, and rigid monitoring processes hinder progress, while gaps in stakeholder trust and communication exacerbate operational challenges. The study highlights the need for targeted interventions, such as the establishment of new schools, revision of quality assessment criteria, a minimum compensation package for teachers, community engagement, parental involvement, and technology integration, to improve outcomes. Ultimately, the findings underscore the importance of comprehensive reforms in governance and resource allocation to ensure that PPPs foster inclusive, high-quality education for all students in Punjab.

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1. INTRODUCTION

Background and Context of the Study

Public-Private Partnerships (PPPs) in education have gained global attention as a promising solution to address educational challenges (Ansari, 2024). These partnerships involve contractual arrangements where the private sector delivers educational services to the government, assuming responsibility for service delivery and risk-sharing, while the government ensures financing and upholds social values, such as compassion and social cohesion (Robertson & Verger, 2012; Rind, 2022). PPPs are typically viewed as an instrument for combining public and private resources, including expertise and knowledge (Ma et al., 2022; Bovaird, 2004) and justified by the possibility of generating "synergy," or what Huxham (2003) terms collaborative advantage. The goal of partnership is frequently seen as achieving these synergies (Skelcher & Sullivan, 2008; Brinkerhoff & Brinkerhoff, 2011). Such synergies are conceptualised as the co-creation of public service value whereby several actors share and integrate their resources in the service ecosystem (Ansell & Torfing, 2021; Osborne, 2018; Osborne et al., 2022; Petrescu, 2019). Co-creation is a collaborative process where governments, private organisations, and citizens pool resources to develop innovative solutions for better service delivery. It shifts responsibility from public organisations alone to include private and non-profit sectors, as well as users, in designing and delivering services (Osborne et al., 2022). User involvement is crucial, as meaningful value cannot be achieved without their participation.

The use of PPPs enhances the opportunity for added value of services through meaningful collaboration between the public and private sectors. In education, this process enables the private sector to bring innovative teaching methods and technology, easing the public education sector's burden and providing quality education, especially in underserved areas (Al Haddar, 2023). However, the interaction of diverse stakeholders does not always guarantee the creation of public value. For example, PPPs in low-income countries often prioritise donor agendas over local needs, undermining national sovereignty (Robertson & Verger, 2012). In Pakistan, such projects face criticism for imposing global standards that ignore local contexts (Rind & Shah, 2022), marginalising less powerful stakeholders and limiting inclusive collaboration. Ansari (2020) highlights "cream skimming" in PPP schools, where easier-to-educate students are favoured, excluding marginalised children. Similarly, Aslam & Kingston (2021) note that hidden costs often make these schools inaccessible to the poorest, undermining their purpose.

Such barriers to collaboration not only hinder the co-creation of value-added services but can also lead to the “co-destruction” of service value (Cui & Osborne, 2022 and 2023; Engen et al., 2021). Co-destruction occurs when interactions among stakeholders result in reduced or negative value instead of improvements (Echeverri & Skålén, 2011; Smith, 2013). For example, poor communication, conflicting goals, or unequal power dynamics can diminish the effectiveness of partnerships. Therefore, it is essential to explore how stakeholders exchange resources—such as finances, technical expertise, infrastructure, and human resources—to foster positive collaboration and co-create value. Understanding inter-organisational relationships and the involvement of service users is crucial for evaluating the effectiveness of PPPs, an area that has been under-researched.

In the context of educational PPPs in Pakistan, although several studies have evaluated the educational outcomes of PPPs (Ansari, 2024; Khalid & Tadesee, 2024; Rind, 2022; Siddiqui & Channa, 2021), the researchers have majorly focused on quantitative determinants, whereas deeper exploration through qualitative analysis is much warranted (Khalid & Tadesee, 2024; Rind & Malik, 2024). In particular, their governance mechanism, inter-organisational relations and the role of wider stakeholders (including the service users) in the creation of value-added services are a less explored domain. This gap calls for deeper exploration and research into the practical implementation and outcomes of PPPs in Pakistan’s educational landscape (Naveed, 2013; Alam & Mohanty, 2023; Arshad & Doger, 2022).

Problem Statement

Despite significant efforts to reform education through PPPs, Pakistan remains home to the world’s second-largest population of out-of-school children (OSC), with approximately 26.2 million children aged 6–16 not enrolled in school (UNESCO, 2021; GOP, 2023). Punjab, a leader in PPP-based educational reforms, still struggles with 7.83 million OSC, with 16% never attending formal education (Akram, 2024), reflecting persistent challenges in access, equity, and learning quality. Issues such as inadequate infrastructure, high dropout rates, and poor learning outcomes, especially for girls and rural children, continue to undermine progress (Arshad & Doger, 2022; Pasha, 2024). These challenges erode parental confidence in education’s value, and Pakistan consistently fails to meet Millennium Development Goals (MDGs) and Sustainable Development Goals (SDGs), including achieving universal primary enrolment and 88% literacy (GOP, 2014; Pasha, 2024). Despite Punjab Education Foundation’s (PEF) initiatives, such as the Foundation Assisted Schools (FAS), Education Voucher Scheme (EVS), and New School



Program (NSP), as well as efforts by the Punjab Education Initiative Management Authority (PEIMA), key gaps in achieving holistic educational outcomes persist. This raises the critical question of whether PPP initiatives effectively address the enrolment crisis, particularly for marginalised children, and whether they ensure meaningful learning outcomes.

To address these gaps, a comprehensive evaluation of PPPs is necessary, focusing on stakeholder engagement, co-creation dynamics, and their impact on access, quality, and equity. Tailored assessments and deeper exploration are essential to determine whether PPP reforms in Punjab can effectively address educational disparities and foster holistic development (Ali et al., 2020; Ahmad et al., 2023).

Scope of the Study

This study focuses on evaluating the role of PPPs in addressing educational challenges in Punjab, specifically their impact on improving access, equity, and quality in education. It examines the effectiveness of initiatives like PEF programmes and PEIMA interventions in bridging educational disparities and enhancing learning outcomes. The study also explores broader systemic issues, such as stakeholder engagement, co-creation dynamics, and their influence on overcoming barriers to education, particularly for marginalised groups. By addressing these areas, the study seeks to provide a holistic assessment of PPP initiatives in Punjab's education system.

Research Objectives

The following are the specific objectives of the study:

1. Assess the quality of education delivered through the mode of PPPs in the province of Punjab
2. Examine the effectiveness of educational PPPs for addressing equity challenges in the provision of education to marginalised communities in the province of Punjab.
3. Explore how PPPs can address the challenge of enrolment crises (access to education for marginalised/underserved populations) in Punjab.
4. Identify best practices and key success factors for value co-creation through PPPs in education.
5. Explore the challenges and limitations associated with implementing PPPs' initiatives in the education sector.

To address these objectives, the study used a case study design with mixed-methods research, including multiple sources of qualitative data (interviews, focus-group discussions (FGDs), policy reports, etc.) and quantitative data (students' results, enrolment trends, etc.). Qualitative data is analysed through thematic analysis using NVivo, while quantitative data is analysed through t-test and trend analysis using SPSS.

2. LITERATURE REVIEW

Public-Private Partnership in the Education Sector

The United Nations (UN) established Education for All (EFA) and universal primary education in the 1990s, promoting PPPs to achieve 100% primary school enrollment by 2030, with UN-supported bodies funding PPP initiatives for governments and NGOs (UNDP, 2015). The commercial sector, non-profits, and charitable organisations were engaged to promote equal access to education through PPPs (UNICEF & ADB, 2011). PPPs are seen as key to addressing inefficiencies and inequality in the public sector, alleviating issues such as weak leadership, resource shortages, and bureaucratic hurdles in public schools (Gideon & Unterhalter, 2020; Mgaiwa & Poncian, 2016; Ahmed et al., 2023). This model is rapidly expanding across both developed and developing nations (Verger, 2012). International organisations like the World Bank and Asian Development Bank (ADB), along with bilateral partners such as USAID, have played a significant role in financing and driving educational reforms through private sector participation.

In Pakistan, approximately 20% of the entire educational budget has been allocated to this funding (Hathaway, 2005). The amalgamation of resources, expertise, and a shared commitment to educational advancement signifies a unique model of PPPs. This model encapsulates the collaborative spirit between NGOs and public-sector entities, pooling their strengths to create sustainable and impactful educational transformations within these adopted institutions. Through this concerted effort, the aim is to foster an environment conducive to holistic development and improved learning outcomes for the students attending these schools (Barrera-Orsorio et al., 2022; Irfan, 2015).

The provinces of Punjab and Sindh have played a major role in providing PPP-based education in Pakistan. Sindh province emerged as a major player in the PPP process after the provincial government introduced several PPP models. The Sindh Education Foundation (SEF) played a significant role in



establishing schools for underprivileged families in the 1990s by collaborating with private groups and individuals. In 1997, the SEF Assisted Schools (SAS) program was launched to increase access to education by using PPPs. SEF gave funding to schools based on enrollment to encourage them to enrol more children (Ansari, 2024). Another noteworthy achievement for Sindh is the introduction of the Education Management Organizations (EMO) model in 2015, which was a more organised approach to PPP in education. In this model, public schools are managed by commercial organisations that emphasise student performance and administrative efficiency. International donors, such as USAID, backed the EMO model, which sought to integrate private sector innovation with state control (Rind & Shah, 2022). In order to guarantee integrity and accountability, this model highlighted the significance of key performance indicators (KPIs), such as student attendance, retention, and enrolment.

In Punjab, inclusive education and technological integration in PPPs have gained significant traction in the post-pandemic landscape. To address educational gaps, investments in digital learning, competency-driven curriculum reform, coordinated teacher training, and infrastructure have been emphasised. In addition, policy interventions and community engagement are essential for ensuring accessibility (Nasir et al., 2025). During school closures, low-tech interventions have greatly enhanced kids' language proficiency, proving the worth of focused learning techniques in sustaining academic advancement (Adil et al., 2022). Moreover, the gaps in technology access among urban and rural communities have highlighted the need for an equitable distribution of digital resources in order to promote inclusive education (Waqar et al., 2024).

For equity in Punjab, a USD 150 million World Bank initiative approved in June 2024 will increase the number of boys and girls enrolled in primary and pre-primary schools. A key objective of this project is to improve the quality of teaching and learning resources, to increase the number and strength of private-public partnerships, to improve the learning environment in schools, and to prepare young children for school (World Bank, 2024). Additionally, the National Education Policy Development Framework of 2024 emphasised the role of PPPs in the delivery of educational opportunities and stressed the role of organisations such as the PEF in overseeing institutions operating under this model (PIE, 2024). This shows Punjab's commitment to closing learning gaps, providing educational opportunities to diverse populations, including inclusive education through PPPs.

PPPs in the Education Sector in Punjab: Role, Success, and Challenges

The 18th Constitutional Amendment of 2010 shifted the responsibility of the provision of education to provincial governments. This reform brought in a new education policy framework that mandated the state to ensure free, compulsory and high-quality education for individuals aged 5 to 16.

The elevation of Pakistan, particularly its Punjab province, as a pioneering example in steering public resources toward low-fee private schools (LFPS) for education provision has drawn attention in South Asia (Zancajo et al., 2021). The government's active involvement, especially in Punjab, directing resources to LFPS, has been notable and received global recognition (Thakore, 2004).

Punjab's education PPPs have progressed through three distinct phases. The initiation phase (1991–2004) began with the establishment of the PEF in 1991. In 2004, the Punjab government unveiled a policy halting the establishment of new government-run schools, pivoting instead toward school expansion via PPPs (Muralidharan, 2007), facilitated by PEF. During this phase, PEF introduced the FAS programme to provide free education by financially supporting partner schools to meet quality standards (Malik, 2010; Khan & Jamil, 2023). The expansion phase (2004–2018) saw further innovations, including the EVS in 2006, which empowered impoverished families to send their children to private schools using vouchers (Ansari, 2012).

Additionally, the NSP, launched in 2007, facilitated entrepreneurs in establishing private schools in underserved areas, significantly increasing enrollment in marginalised communities (Arshad & Doger, 2022). The specialisation phase (2018–present) marked the creation of the PEIMA to focus on public school reforms through the Punjab School Support Program (PSSP). Under this initiative, poorly performing public schools were transferred to private organisations for better management. This allowed the PEF to concentrate on private sector collaborations while PEIMA addressed public school needs, providing a more targeted approach to education reform (Chaudhry & Tajwar, 2021; Khan & Jamil, 2023). Despite these advancements, challenges related to sustainability, equity, access, and quality remain (Ansari, 2021).



Value Co-Creation in Public-Private Partnership: Conceptual Framework

PPPs seek to give everyone access to high-quality education by occupying a special place at the nexus of the public interest and private sector efficiency. However, a significant question remains: do PPPs effectively promote fairness in education? This study takes the governance perspective of the partnership model to determine the PPPs' effectiveness. This study assesses whether the inter-organisational relations and governance structure can create some value through the collaborative efforts of the public and private partners and how the value can be translated into positive education outcomes, such as enhanced access, equity and quality of education.

Role of Inter-Organisational Relations

It can be asserted that by fostering strong inter-organisational relations (IORs), stakeholders in PPPs can leverage their diverse expertise and resources to co-create innovative solutions. This collaboration allows for the exchange of ideas, knowledge, and best practices, leading to more effective strategies and interventions in education (Steijn et al., 2011).

IOR can be further elaborated in different forms. According to Brinkerhoff & Brinkerhoff (2011), IORs are categorised as contract, extension, and partnership based on the level of organisational identity and mutuality. According to Irfan (2015), there can be four forms of IORs that can be assessed through the nature of the relationships between the parties. These four forms of IORs are collaborative IORs, contractual IORs, cooperative IORs, and conflictual IORs. Since PPP arrangements presume the collaboration between the parties, this study conceptualises the IOR between the partnerships on the collaborative continuum (ranging from collaboration to conflictual). The type of IOR varies according to the level of collaboration both parties have.

Role of Governance Structure

In addition to IOR, the governance structure of PPPs also plays a critical role in shaping educational outcomes (Kim, 2016). A well-designed governance structure ensures clear roles, responsibilities, and decision-making processes, promoting accountability and alignment of goals among partners (Panda, 2015). These structures define the distribution of power, responsibilities, and accountability among the partners, which in turn influence the decision-making processes and implementation strategies. The choice of



governance structure can vary depending on the context and goals of the partnership (Steijn et al., 2011) and can have varying impacts on educational outcomes. For instance, partnerships with a principal-agent relationship and strong contractual ties, such as the UK PFI partnerships in the education sector, may prioritise efficiency and cost-effectiveness but may limit flexibility and innovation (Kim, 2016).

The governance structure also involves establishing mechanisms for conflict resolution, monitoring the progress of initiatives, and ensuring transparency and accountability in decision-making processes. The effectiveness of governance structures is central to fostering a shared vision and maintaining alignment of goals among partners.

PPPs' outcomes stem from joint planning, shared decision-making, and coordinated actions leveraging the strengths of each partner (Eriksson et al., 2020; Lapuente & Van de Walle, 2020; Waldorff et al., 2014). Additionally, PPPs foster a networked educational ecosystem where stakeholders collaborate and share knowledge to drive continuous improvement in education (Könings et al., 2021; Kušljic & Marenjak, 2011; Sicilia et al., 2016). However, the success of these partnerships hinges on the commitment and active participation of all stakeholders, including educational leaders, government officials, community organisations, and private businesses.

Value Co-Creation through PPPs

Originally introduced in the private sector by Prahalad & Ramaswamy (2004), co-creation is conceptualised as the process by which companies engage with stakeholders to collaboratively produce value-added products, services, and experiences. Later, Vargo & Lusch (2004) presented the service-dominant logic (SDL), extending the concept of value from a product-centred to a service-centred view.

In public management, the public service logic (PSL) perspective emphasises co-creation that focuses on integrating resources between public service organisations (PSOs) and their users (Osborne, 2018; Osborne et al., 2013). PSL represents a significant shift in the understanding of value creation within public services. Traditionally, value creation was seen as a one-to-one relationship between the service provider and the user. PSL, however, broadens this perspective to recognise that value is co-created by multiple interconnected actors. These actors, including PSOs, users, and other stakeholders, integrate their resources within the broader public service



ecosystem (Osborne et al., 2022). PSL shifts the perspective of value creation from a simple, one-on-one interaction to a broader network where multiple actors collaboratively integrate resources (Osborne et al., 2022; Petrescu, 2019; Trischler & Charles, 2019).

This study argues that understanding these inter-organisational relationships is essential, as they highlight the interconnected and collaborative nature of PPPs. Notably, dynamic interactions among stakeholders do not always result in co-creation; they can lead to service value co-destruction, reducing value for one or more parties involved in the process (Cui & Osborne, 2022 and 2023; Engen et al., 2021; Echeverri & Skålén, 2011; Smith, 2013).

The concept of co-creation/co-destruction is very pertinent for delivering education through PPPs that involve collaboration between government bodies and private entities (non-profits, private schools, NGOs, and private-sector companies). By leveraging PSL, we can see that the value in these partnerships is not delivered solely by one party but co-created through the active participation of multiple stakeholders: the government, private providers, educators, students, parents, and communities. This process forms interconnected service ecosystems focused on stability, well-being, sustainability and survival (Lusch et al., 2016). This study positions value co-creation as a mediator linking the IOR, governance structure, and PPPs educational outcomes. Educational leaders and stakeholders in PPPs can improve decision-making, align goals, optimise resource allocation, and achieve better educational outcomes through effective inter-organisational relations and governance structures (Bridwell-Mitchell & Sherer, 2017; Kapucu et al., 2010). These improvements contribute to value co-creation, which enhances educational outcomes such as access, equity, and the quality of education. Figure 1 depicts the conceptual framework of the study.

*Figure 1: Co-Creation of Public Service Value through PPPs:
Conceptual Framework*



Source: Authors' illustration.

3. RESEARCH METHODOLOGY

Mixed Method Case Study Research Design

The research utilised a case study design with a convergent parallel mixed method approach. The case study design was required for an in-depth exploration of the phenomenon in a real-life context, while the mixed methods allowed a holistic examination of the phenomenon. Following Yin (2018), this study used multiple sources of data, combining the qualitative data sources (semi-structured interviews, FDGs, observation, policy documents/company reports) and quantitative data sources (students' assessment results, enrolment trends, enrolment of marginalised groups, etc.). The purpose of a convergent mixed methods design was to collect both quantitative and qualitative data, merge the data, and use the results to understand the research problem. The rationale for this design was that one data collection form supplied strengths to offset the weaknesses of the other form, and that a more complete understanding of a research problem resulted from collecting both quantitative and qualitative data. For example, quantitative scores provided strengths to offset the weaknesses of qualitative documents from a few people. Alternatively, qualitative data offered strength to quantitative data that did not adequately provide detailed information about the contextual factors.

Case Selection

Two PPPs in Punjab were taken as units of analysis, including PEF and PEIMA. Both PPPs operate with a large network of schools in the province of Punjab. Therefore, these two PPPs serve as typical cases to represent the educational PPPs in Punjab.

Sampling Strategy

The sample included diverse stakeholders, including students, parents, teachers, school administrators, PPP management, and government officials. A multi-stage sampling technique was employed to ensure representation from various regions and various programme types of PEF and PEIMA. The sample included two districts from each region, ensuring representation from North, South, and Central Punjab. Five to seven schools were reached in each district, covering the PEF-EVS programme, the PEF-FAS programme, and PEIMA. In each school, interviews were conducted with the principals.

Moreover, FDGs were conducted with the group of teachers, students, parents, and the community. Additionally, a survey (with open-ended questions) was administered to have extensive coverage of the views of the teachers about the teaching methodologies, quality of education and school facilities.

Purposive and convenience sampling techniques were used to select the respondents. Purposive sampling was used to ensure the representation and coverage of various programmes of PEF and PEIMA in the sample. Moreover, purposive sampling ensured the inclusion and representation of diverse stakeholders in the sample (such as PPPs' management, school administration, teachers, students, parents, and community members). Convenience sampling was used to access the FGD and survey respondents. Given that convenience and access guided respondent selection, the sampling strategy prioritised the availability of the respondents while ensuring diversity across the various school/programme types of PPPs.

The sample size was determined based on reaching the saturation point, a recognised criterion in qualitative research, which indicates that no new information can be obtained from additional data collection (Saunders et al., 2018; Guest et al., 2020). Quantitative data were collected from students' results in secondary school certificate (SSC) exams of the PEF and government schools, Grade 5 results of PEF, PEIMA and SED schools under large-scale assessments (LSA), and students' enrolment statistics. This dual approach ensures that both qualitative and quantitative aspects of the study are adequately addressed, with appropriate sample sizes for each method.

Table 1 provides the details of data collection techniques and the data sources/respondents.

Table 1: Sampling Strategies, Data Collection Techniques, and Data Sources

Selection of cases, districts, and schools		
Case Selection	1- PEF and PEIMA	Purposive sampling
District Selection	- Central Punjab: Lahore and Faisalabad	Purposive sampling
	- South Punjab: DG Khan and Multan	
	- North Punjab: Rawalpindi and Sargodha	
School Selection	4-6 5-7 Schools from each district with the coverage of PEF-FAS schools, PEF-EVS schools, and PEIMA Schools	Purposive sampling
Date collection techniques and sources		
Interviews at the policy level	- 1 Representatives from local governments	Purposive sampling
	- 1 Independent education experts	



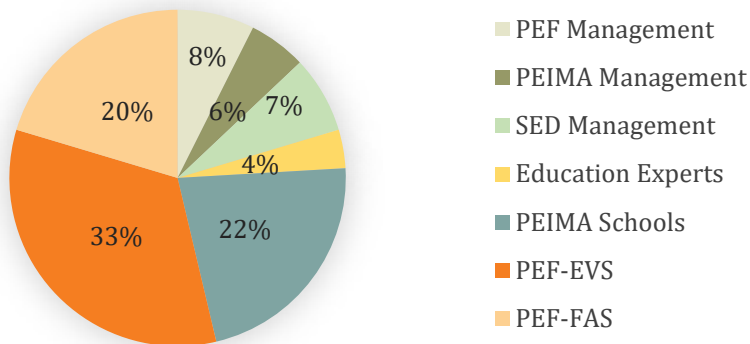
Date collection techniques and sources		
Interviews with PPP management	- 4 interviews with the managing team of PEF	Purposive sampling
	- 3 interviews with the managing team of PEIMA	
	- 4 interviews with officials in the School Education Department (SED)	
Interviews with the school administration	- 5-7 School administrators/principals in each of the 6 districts with the coverage of PEF and PEIMA schools.	Convenience sampling
FGD	- 3 parents focus groups (2 representing PEF and 1 representing PEIMA)	Convenience sampling
(7-8 participants in each FDG)	- 3 student focus groups (2 representing PEF and 1 representing PEIMA)	
	- 4 teacher focus groups (2 representing PEF, 2 representing PEIMA)	
	- 3 community focus groups (from marginalised/ low-income population)	Convenience sampling
Survey questionnaire (open-ended)	- 5-8 responses from each school visited (filled by teachers), with the coverage of 35-40 responses from each district.)	
Quantitative Data	- SSC results (for the year 2023) of the PEF schools and Government Schools located in the same geographical area	
	- LSA Grade 5 results of PEF, PEIMA, and SED Schools for 2021, 2022 & 2024	
	- Enrolment trends in PEF, PEIMA and government schools	
Documents/ secondary sources from the field	- Policy documents	
	- Government archives	
	- School reports	
	- PPP annual reports/ other publications	
	- School brochures/marketing material, etc.	

Source: Authors' calculations.

Figure 2 shows interviews with various stakeholders, while Figure 3 details district-wise coverage of schools under PEF and PEIMA. A total of 41 schools were visited. Figure 4 displays data from 244 open-ended questionnaires, and Figure 5 illustrates the number of FDGs conducted.

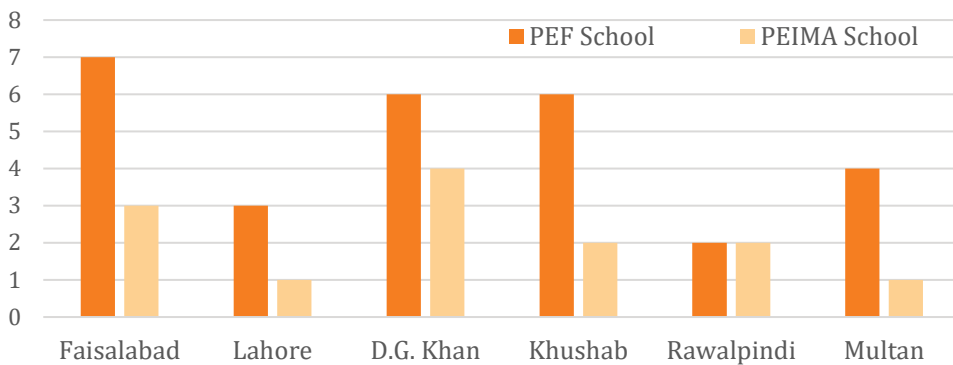


Figure 2: Interview Coverage



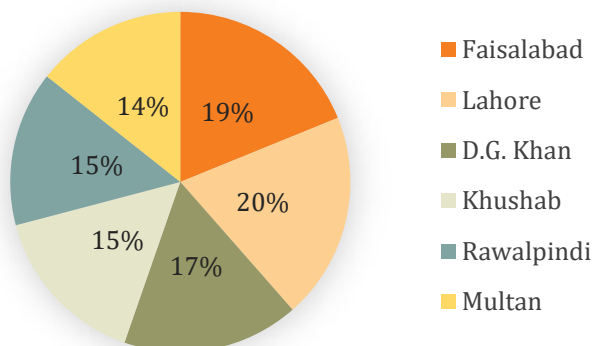
Source: Authors' calculations.

Figure 3: District-wise Coverage of Schools



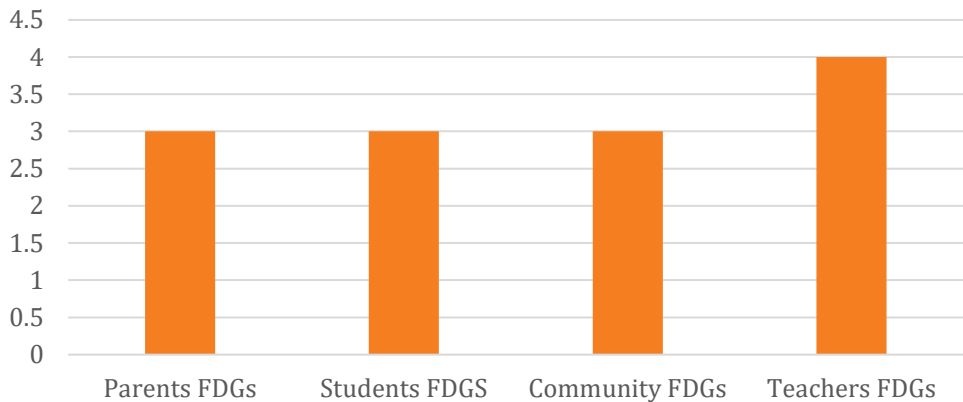
Source: Authors' calculations.

Figure 4: District-wise Open-ended Questionnaire



Source: Authors' calculations.

Figure 5: Focus Group Discussions



Source. Authors' compilations.

Data Analysis

Interviews and FDGs were transcribed and analysed using thematic analysis with NVivo 14.0 software. Themes and patterns were identified to explore the relationships qualitatively about the IOR, governance structure, co-creation and educational outcomes. The open-ended questions in survey data further enriched the thematic analysis.

In quantitative analysis, SSC data sets were analysed for academic achievement differences between PEF’s selected schools and other government schools in the same geographical location. Enrolment trends were analysed to assess access to education. The presence and performance of marginalised groups were analysed to assess the equity of education. The quantitative analysis was used to offset the weakness of the generalisability of the findings from the qualitative part of the study. On the other hand, qualitative data analysis provided a rich explanation of the findings. Thus, both methods complemented each other. In short, in this study, triangulation was performed in different phases. First, interviews were triangulated with focus group discussions, followed by triangulation with quantitative analysis.



Description of Constructs/Variables

Data Authenticity

To ensure the authenticity of the qualitative data, each transcription was assigned a unique code that enabled the mapping of the quotes in the transcriptions. At the same time, the anonymity of the respondent was also ensured. The codes were assigned based on a combination of abbreviations representing the district and the type of institution, as well as a unique identifier. For example, the reference of “PEF-FPR-03” represents PPP (PEF), Faisalabad district (F), principal (PR) and the number of the interview (03). This coding system ensured that each school's district, role, and unique identity were clearly represented.

Quality Checks

The study used inter-coder reliability checks to enhance the credibility of the qualitative data analysis. The concepts were operationalised, and an interview guide was prepared for the data collection. Moreover, a theoretical framework was conceptualised considering the comprehensive literature review. Both the theoretical framework and interview guide provided the baseline for the first-level coding. During the first-level coding, coders were given extensive training on the preconception codes and the codes emerging from the data. The training proved useful as coders interpreted and labelled the data unanimously. Moreover, the transcriptions were done by another coder so that any anomalies could be checked and corrected.

Ethical Considerations

Respondents were granted informed consent, with clear communication about the study's purpose and their rights. To ensure confidentiality and anonymity, transcriptions were coded and anonymised for use in research reports and publications. For the protection of vulnerable groups, the researcher ensured that the study did not cause harm or exploitation of vulnerable individuals or marginalised communities. Appropriate data security measures were implemented to protect sensitive information collected during the research, including secure storage protocols.

4. CASE DESCRIPTION

Two cases, PEF and PEIMA, were selected as representative cases of PPPs in Punjab.

Punjab Education Fund (PEF)

PEF, established in 1991 and restructured under the Punjab Education Foundation Act 2004 (amended in 2016), is an independent statutory organisation. PEF operates three key programmes:

1. FAS: FAS increases educational access in underprivileged districts of Punjab through PPPs. Over 1.77 million children are enrolled in 3,500 partner schools under the FAS programme.
2. NSP: New schools are established in rural villages, prioritising areas with no schools for at least 350 children. Local entrepreneurs and education stakeholders are encouraged to run these schools, which must meet minimum requirements (e.g., two classrooms, two teachers, a toilet, and drinking water) (PEF, 2018).
3. EVS: Introduced in 2006, EVS removes financial barriers to education by providing vouchers to low-income families, encouraging them to send children aged 5-16 to school instead of work. By offering direct financial support, this programme addresses child labour issues and enables families to prioritise education over earning (PEF, 2015).

Through these programmes, PEF strengthens educational opportunities and fosters socioeconomic development in Punjab.

Punjab Education Initiatives Management Authority (PEIMA)

Established in 2018, PEIMA aims to implement education reforms in non-performing government schools. Government primary schools, previously managed by PEF under PSSP, were rebranded under PEIMA, which managed 4,277 schools in 2021 and provided free education to 635,000 students (PEIMA, 2024). Open to private entities, NGOs, and PEF partners, PEIMA addresses issues like low performance, staff shortages, and declining enrolment. It enhances literacy and learning outcomes by improving teaching quality, boosting enrolment, reducing dropout rates, and contributing to Punjab's overall literacy rate (Javed et al., 2012; Khan & Jamil, 2023; Hussain et al., 2022).



5. FINDINGS

Data was analysed through the process of first-level coding, second-level categorisations, and then generating themes. The first-level coding assigned meanings to the data. These codes were merged into meaningful categories in the second phase. The categories were further merged to generate themes. In each theme, the qualitative and quantitative data were triangulated for the comprehensive analysis.

Access to Education

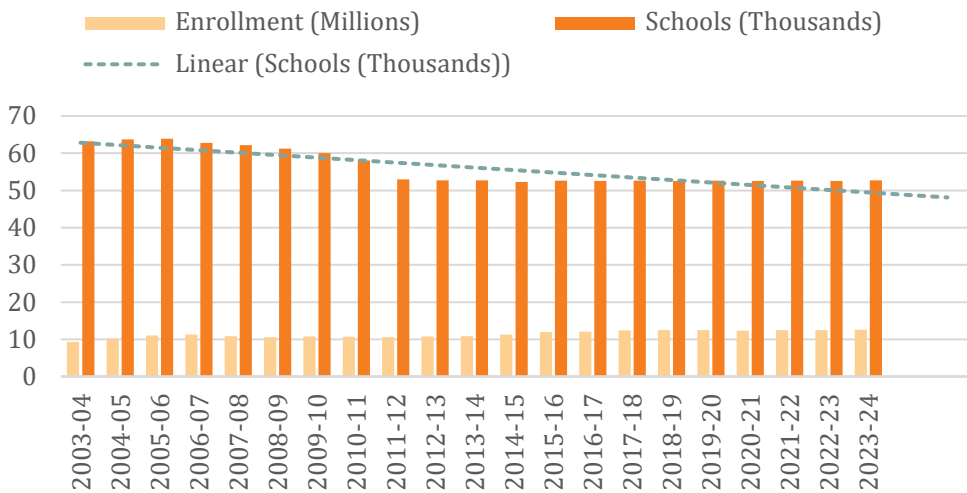
Using quantitative data, access was measured using the number of schools and enrolment data, shown in Figure 6. There is a stagnant trend in the number of SED schools from 2018 to 2024. The present data on school enrolment and the number of schools over several academic years, from 2003-04 to 2023-24. The enrolment appears to peak around 2004-05 and gradually declines in subsequent years. The most recent years show a moderate level, indicating a potential stabilising trend after the initial drop. The number of schools remains relatively stable with slight increases and decreases, but does not experience dramatic changes. The dotted line for schools indicates a downward trend in the number of schools.

The data of PEF schools is compared with the SED schools and PEIMA to determine whether the PPP arrangement has increased access to education. The data depicts a decrease in the number of schools but an increase in the enrolment rate. Both SED and PEF experienced a decline in the number of schools from 2016 to 2023. SED saw a more significant decrease in the number of schools (7.8%), while PEF had a smaller decline (5.2%). In contrast, the schools under PEIMA saw significant growth, increasing from 996 to 4,276. This increase is due to the reform initiative whereby SED's schools were shifted to PEIMA.

Enrolment figures paint a more positive picture. SED and PEF reported a rise of 6.5% and 15.4%, respectively. Additionally, PEIMA experienced a dramatic rise, jumping from 118,296 to 614,166, highlighting significant growth in this area. Collectively, these trends reflect a complex educational environment, where the number of schools decreased, whereas the enrollments increased, indicating an additional burden on the existing infrastructure. Notably, the total number of schools (including SED, PEF, and PEIMA) decreased from 61,268 in 2016 to 60,370 in 2023, whereas enrollment increased. It indicates that overall, the number of schools has not increased but rather shifted from one authority (SED) to another (PEIMA).

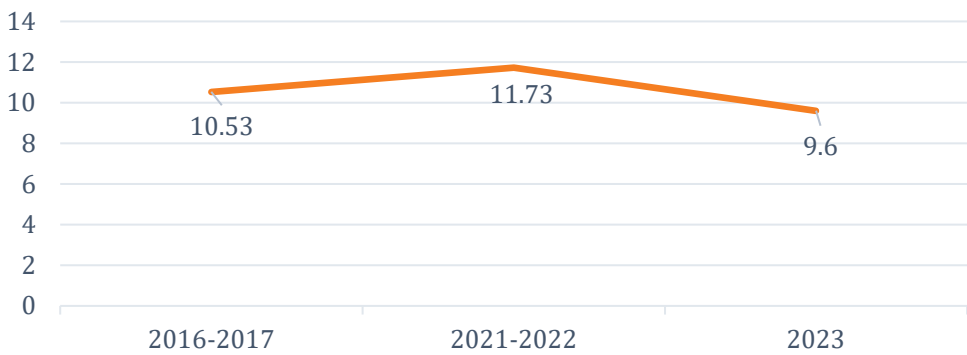


Figure 6: Trends in Enrollments and Schools, 2023-24



Source: Government of Punjab (2024).

Figure 7: Out-of-School Children (OSC)

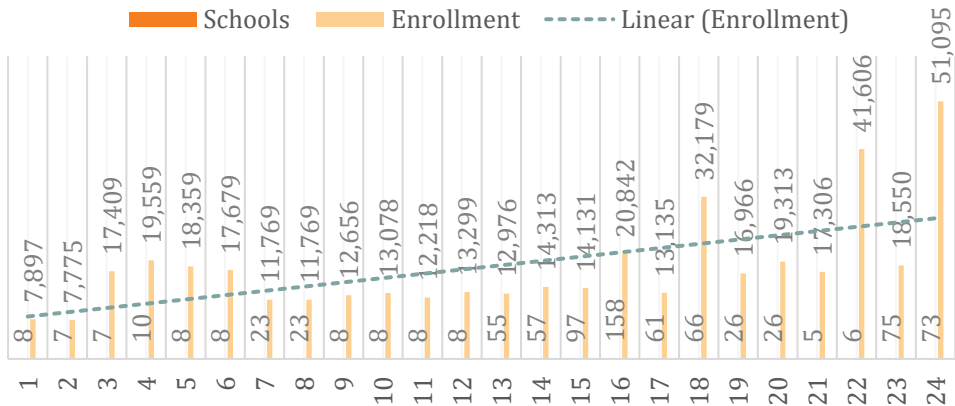


Source: GOP (2024).

On the other hand, the percentage of OSC in Pakistan decreased from 44% in 2016-17 to 39% in 2021-22, as depicted in Figure 7. Despite this decrease in percentage, the absolute number of OSC went up from 22.02 million in 2016-17 to 26.21 million in 2021-22. This is primarily attributed to the population increasing at a higher rate compared to the rate of decrease in OSC. A decrease in OSC, whereas an increase in students’ enrolment indicates that PPPs improved access to education in 2023 as compared to 2016.

Figure 8 shows signs of increased student enrolment in Punjab, and it also underscores the importance of ongoing efforts of PPPs to increase access to education.

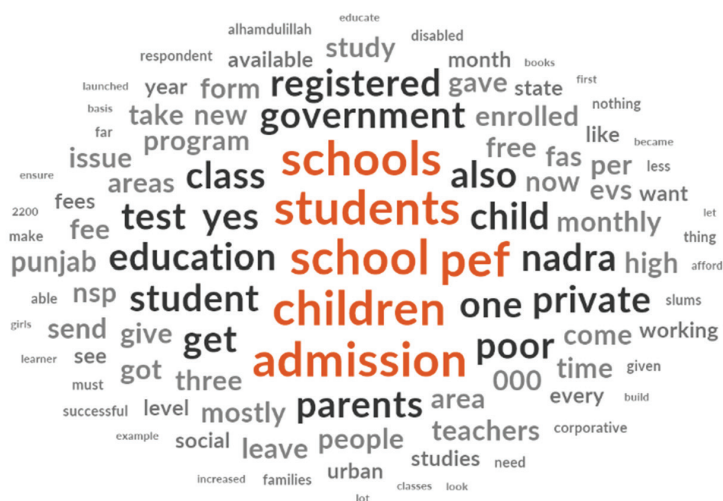
Figure 8: Enrolment Trends



Source: Government of Punjab (2024).

The findings from quantitative data are further strengthened by qualitative data. Interviews reveal that although PPPs are playing a positive role in increasing access to education in Punjab, it is heavily influenced by community involvement and socioeconomic factors. Schools run by PEF and PEIMA are providing free education to a large number of kids who are unable to pay for schooling. With initiatives like the NSP and the EVS, which target rural and urban slums, respectively, PEF has made substantial strides in increasing access to education. The coding of access is shown in Figure 9 as a word cloud, retrieved through NVivo-14. Furthermore, the codes are merged into five major categories related to access to education, shown in Figure 10.

Figure 9: Access Word Cloud



Source: Authors' visualisation.

PEF programmes improve education access through targeted initiatives catering to diverse needs. As one respondent explained:

“FAS is very successful in both the rural and urban areas. EVS is very successful in urban slums. NSP is in the rural areas where there is a need for school. All three have their own dynamics” (PEF-DD-18).

Programmes like Ehsaas also support poor families, incentivising them to send their children to school (PEF-FPR-01). Moreover, urban slums benefit significantly from the EVS program, which targets marginalised areas. However, socioeconomic challenges persist. A principal in Lahore observed, *“Families facing financial issues cannot afford education, and many children balance school with labour to support their families”* (PEF-FPR-01). Documentation issues, such as the lack of a B-form from NADRA, further limit access. One respondent explained:

“A divorced mother in my vicinity could not get her children’s B-forms, so they were unable to study in a PEF school” (PEF-LPR-11).

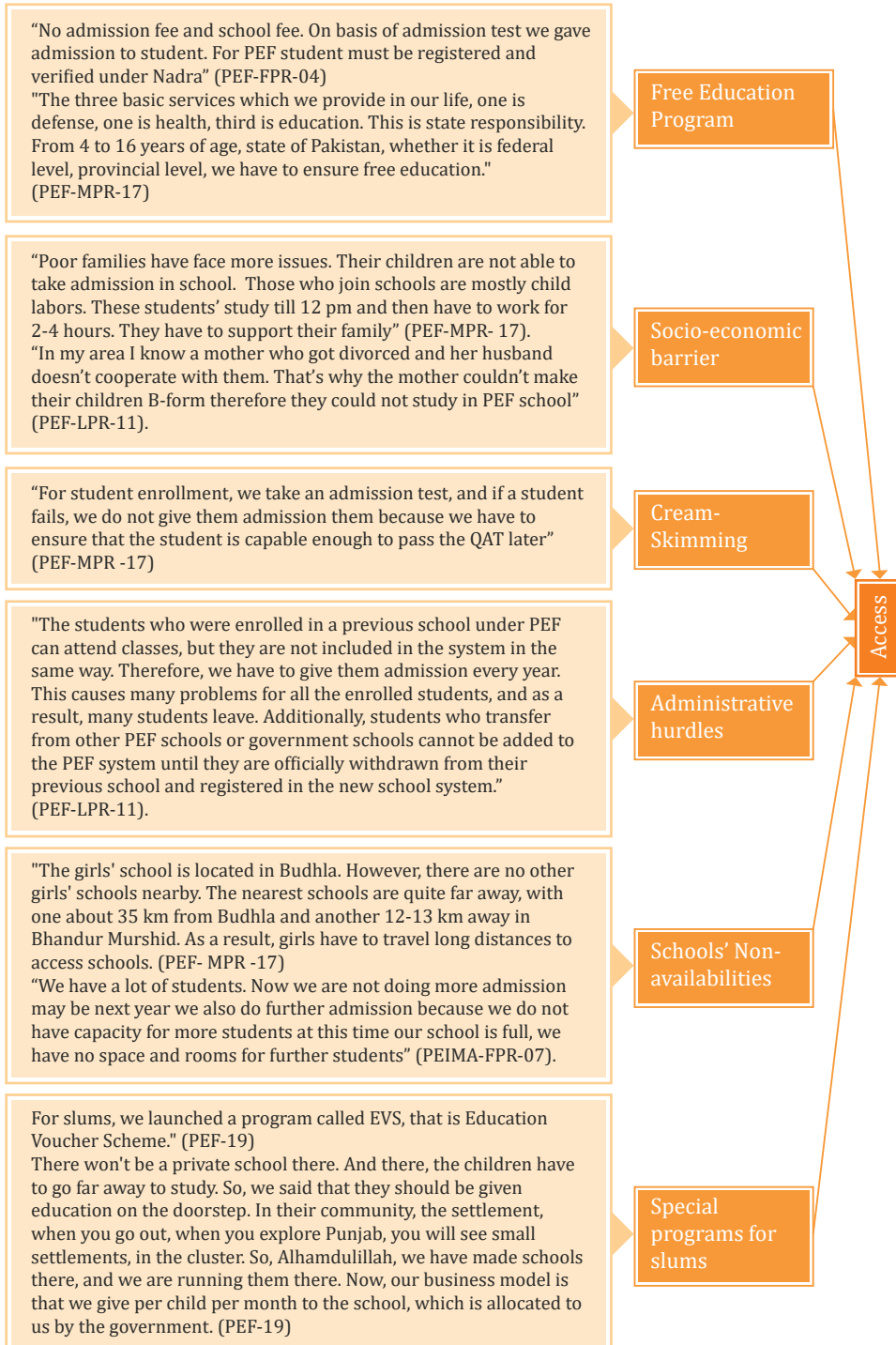
Cream-skimming practices in the form of admission tests also act as barriers for underprivileged students. *“We take an admission test, and if a student fails, we do not admit them. However, we ensure they can pass the QAT later,”* said a respondent (PEF-MPR-17). This practice excludes students with potential who may not perform well on standardised tests due to limited preparation opportunities.

Girls’ access to education is hindered by the lack of nearby schools. A respondent highlighted, *“There are no girls’ schools within a reasonable distance, with one 35 km from Budhla and another 12-13 km away in Bhandur Murshid”* (PEF-MPR-17). Overcrowding in existing schools further exacerbates the issue. *“We cannot admit more students this year as the school is at full capacity,”* shared a principal (PEIMA-FPR-07).

Student transfers between PEF schools face significant challenges. *“Students transferring from other PEF or government schools cannot be added to the system until they are officially withdrawn from their previous school. This delay causes instability, and many students leave,”* explained a respondent (PEF-LPR-11). Unregistered students face yearly re-admissions, creating uncertainty and dropout risks.



Figure 10: Access Coding Process



Equity in Education

Figure 11 depicts the participation and net-enrolment trends in Punjab for the years 2012-2019.

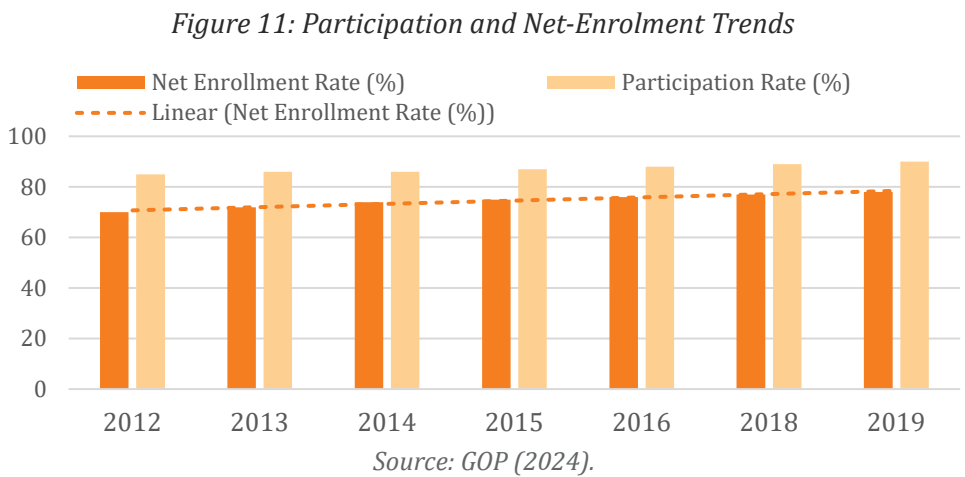


Figure 11 highlights equity concerns in education, showing that net enrolment rates (blue) have been consistently lower than participation rates (orange) over the years. This gap indicates that while many children begin schooling, significant numbers fail to transition to enrolled status, likely due to economic, social, or systemic barriers affecting marginalised groups. Despite an upward trend in both metrics from 2012 to 2019, the persistently lower enrolment underscores inequities in access and retention, particularly for disadvantaged students. Bridging this gap is crucial to ensuring inclusive and equitable education in Punjab.

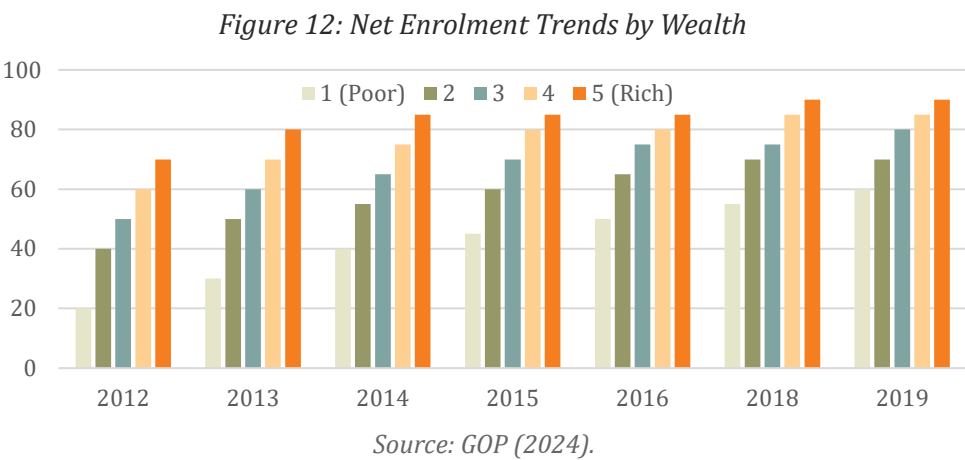
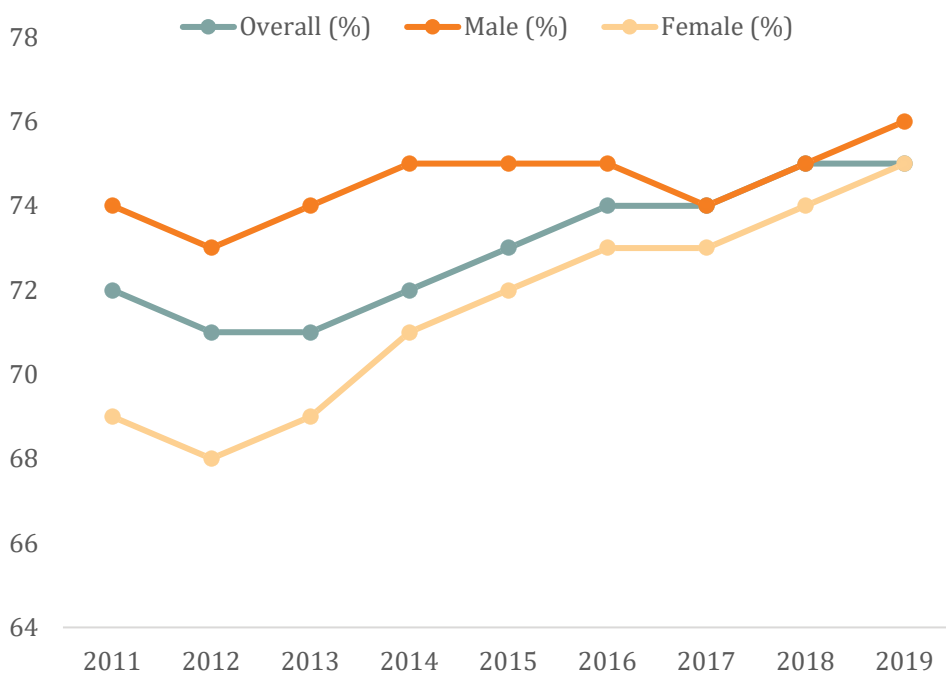


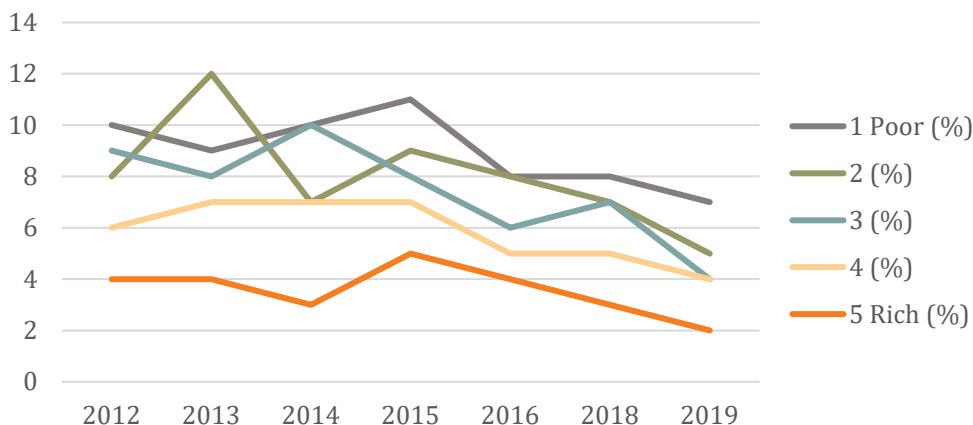
Figure 12 shows that wealthier groups (4 and 5) have significantly higher net enrolment rates than the poorest group (category 1), underscoring systemic inequities in educational access. In 2019, enrolment in category 5 approached 90%, while category 1 remained much lower, reflecting barriers such as financial constraints and limited resources for the poorest. Figure 13 reveals a consistent gender disparity in enrolment, with males (orange) outperforming females (grey) from 2011 to 2019. While enrolment rates for both genders have increased, the persistent gap highlights cultural, economic, and systemic barriers affecting female education. Figure 14 underscores significant inequities in educational retention across wealth categories from 2012 to 2019. The data reveal that poorer students (category 1, in blue) consistently exhibited the highest dropout rates, peaking around 12%, which highlights the systemic barriers they face in continuing their education. In contrast, students from wealthier backgrounds (categories 4 and 5, in yellow and grey) show notably lower dropout rates, indicating better support systems and resources that facilitate their educational persistence.

Figure 13: Net Enrolment Trends by Gender



Source: GOP (2024).

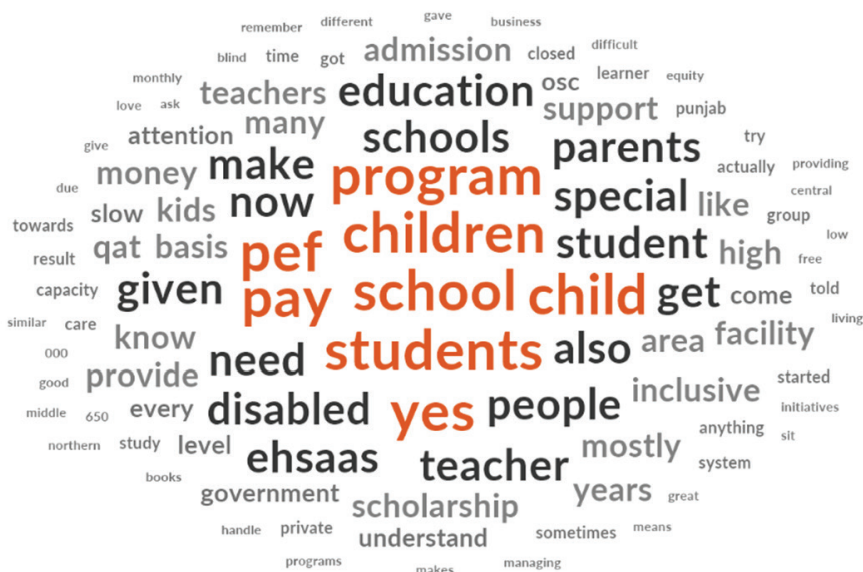
Figure 14: Net Dropout Rates by Wealth



Source: GOP (2024).

The analysis of the qualitative data shows that equity in education is plagued by formidable obstacles. Figures 15 and 16 show NVivo outputs on the word cloud and the coding process, respectively. The data reveal that schools are working towards educational equity, but a diverse strategy is needed to address it comprehensively.

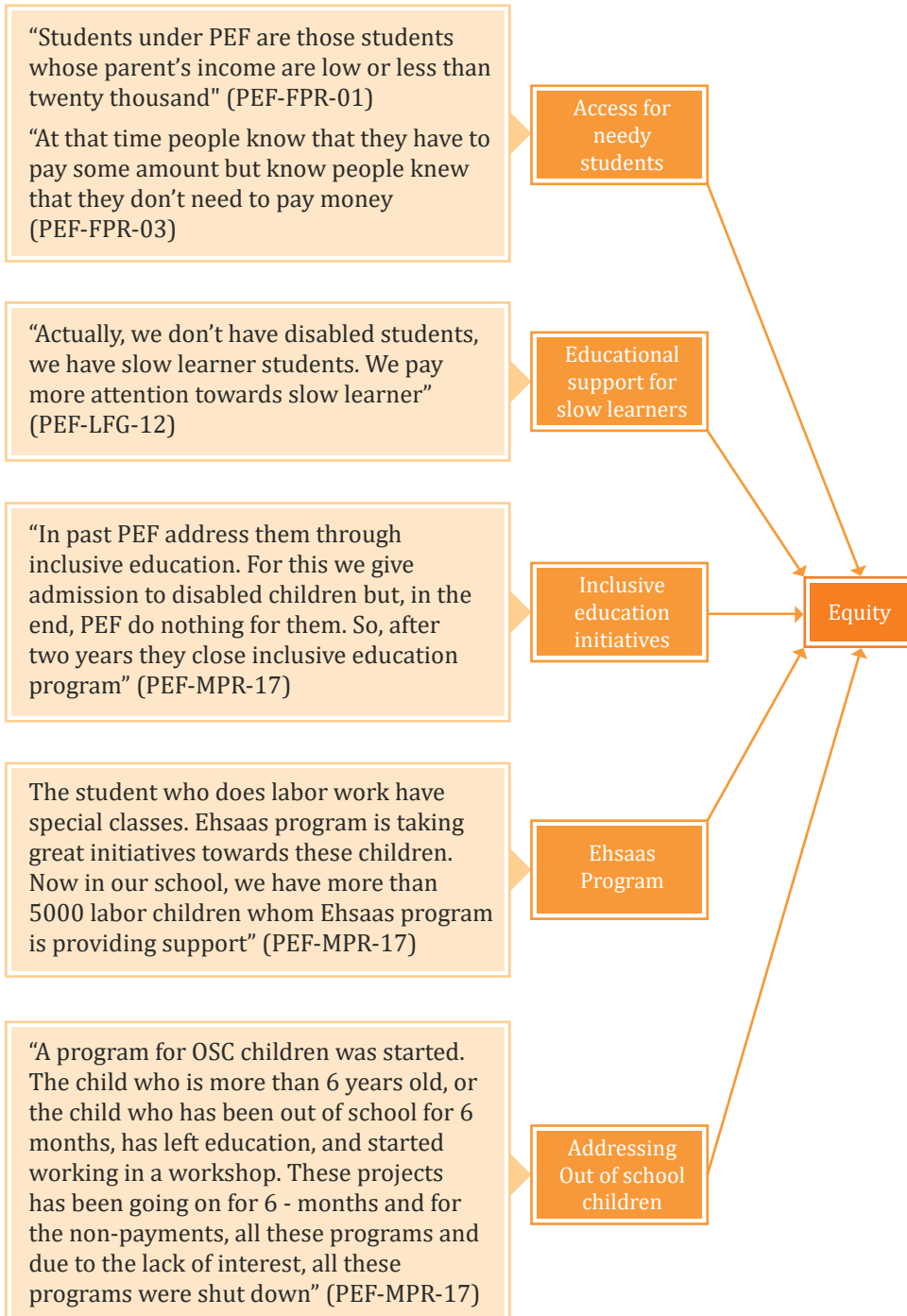
Figure 15: Equity Word Cloud



Source: Authors' visualization.



Figure 16: Equity Coding Process





Access for Underprivileged Students

A respondent in PEF's school explained: *"The children in this area are mostly poor. It's a very expensive area. These kids are very hardworking. In this school, students enrolled under the PEF are those students whose parents' income is less than twenty thousand (PKR 20,000). These parents are mostly from the labour profession"* (PEF-FPR-01). Now, everyone is aware of the PEF and PEIMA programs, which allow more access for the students. When educational hurdles related to finances are removed, education becomes more accessible.

Educational Support Systems for Slow Learners

During school visits, it was observed that only a few of the 41 schools visited accommodated slow learners or students with special needs. For instance, one school had a visually impaired student with vision in only one eye, facing challenges with depth perception and reading speed, while another student with a skin condition struggled with social anxiety. Teachers made extra efforts to prepare such students for QAT. However, most schools lacked resources to support slow learners. As one respondent noted, *"We are under tremendous pressure to complete the syllabus, and handling students with mental health issues is very challenging"* (PEF-LFG-12). Principals suggested separate QAT passing criteria for slow learners, highlighting that the current criterion pushes schools to exclude or remove such students to maintain performance standards.

Inclusive Education Initiatives

The analysis highlights the urgent need for systemic support and government policies to address the unique needs of students with disabilities. Equity requires adequate resources for schools to effectively cater to all students. While PEF introduced inclusive education initiatives, these efforts failed due to poor implementation and lack of support. As one respondent noted, *"PEF told us they would install facilities like commodes in washrooms and slides, so we admitted disabled children, but in the end, PEF did nothing, and the program closed after two years"* (PEF-MPR-17).

A PEIMA respondent emphasised, *"Our school does not have any students with disabilities because we lack the resources and facilities needed to support them"* (PEIMA-FPR-07). Another explained, *"Handling disabled students becomes a separate project. Who will teach them?"* (PEIMA-FPR-07). Only one out of 41 schools visited admitted disabled children on its own initiative, with most



schools citing constraints such as lack of resources, specialised staff, and pressure from QAT testing. A respondent reflected, *"Students with physical disabilities have high challenges, and without government support for schools and parents, they cannot progress"* (PEIMA-FPR-07). In its current state, the system overwhelmingly favours "normal" students, leaving those with special needs excluded.

Addressing Out-of-School Children

Several obstacles must be overcome to address the problem of OSC, especially when it comes to students who have already laboured. When incorporating OSC into regular classrooms, schools encounter many difficulties. It is hard for these kids to adjust to school since they frequently experience behavioural problems that are linked to their workplaces. As one of the respondents expressed his worries, *"The child does not get along with our system. His habits are spoiled. Because of working in the workshop, naturally, he has become stubborn and angry in nature."* (PEF-MPR-17). Initiatives designed to assist OSC have been discontinued because of problems with non-payment and a lack of ongoing assistance and funding.

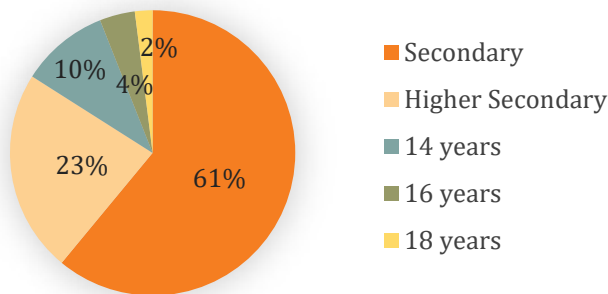
Quality of Education

As shown earlier in Figure 2, the data show increased enrolment despite a decrease in the number of schools, suggesting larger class sizes in SED and PEF schools, which raises concerns about education quality and individual attention. Teacher qualifications, a key indicator of education quality, reveal that only 1.6% of teachers had 18 years of education, while 84% had less than 14 years of education (Figure 17). This indicates a limited pool of highly qualified teachers and highlights the need for more qualified educators to maintain quality education amid rising enrolment and decreasing school numbers.

Figure 18 compares the performance of Grade 5 students in large-scale assessments across PEF, PEIMA, and SED schools. In 2021 and 2022, SED schools outperformed both PEF and PEIMA schools, though the average difference between SED and PEF schools was minimal. By 2024, SED and PEF schools performed equally, while PEIMA schools lagged significantly. The comparable performance of SED and PEF students highlights PEF's efficiency in delivering similar educational outcomes at a much lower cost, despite PEF schools having less qualified teachers compared to government schools.

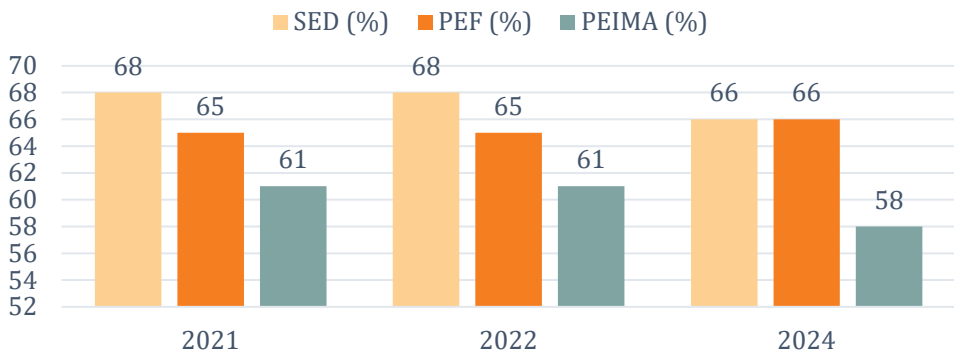


Figure 17: Teacher Qualification



Source: Authors' calculations.

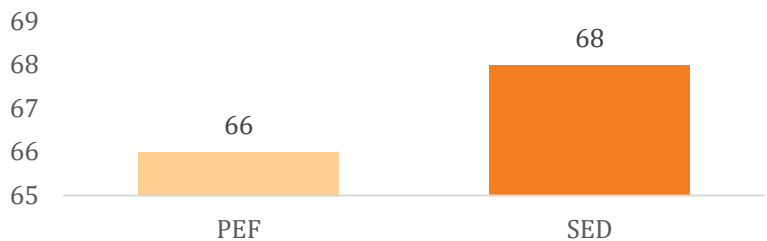
Figure 18: Comparative Analysis of Students' Performance



Source: Data compiled from the results of the 5th Grade from LSA data 2021, 2022, and 2024, conducted by the Punjab Examination Commission (PEC).

Figure 19 provides a visual representation of the comparative performance in LSA Grade 8 of PEF and government schools in the year 2022. SED schools tend to slightly outperform PEF schools in LSA Grade 8 in 2022.

Figure 19: Comparative Performance of PEF and SED in Grade



Source: Data compiled from the results of the 8th Grade from Large Scale Assessment Data 2022.

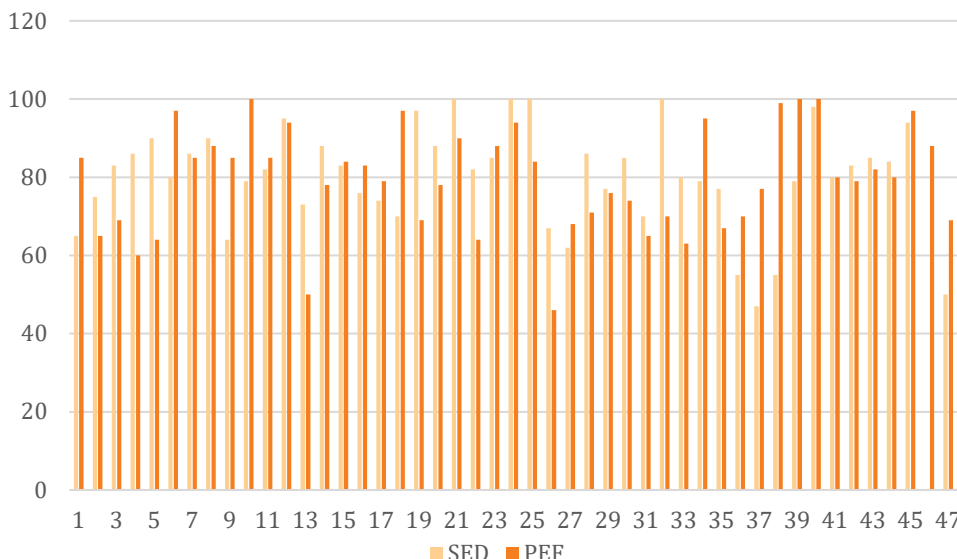
Table 2: T-Test: Two Sample Assuming Unequal Variances

	Govt School	PEF School
Mean	76.9352795	81.34766667
Variance	269.2295988	155.7959334
Observations	161	60
Hypothesized Mean Difference	0	
Df	138	
t Stat	-2.135595805	
p(T<=t) one-tail	0.017239003	
t Critical one-tail	1.655970382	
p(T<=t) two-tail	0.034478006	
t Critical two-tail	1.977303542	

Source: Sample of 60 PEF schools and 160 government schools within the same locality compiled from SSC results (2023).

Table 2 provides the results of the two-sample t-test conducted on the sample data collected from the SSC data for this project. The sample data indicate that the mean score of students from PEF schools (81.35) is higher than that of students from government schools (76.94). This suggests that students in PEF schools perform better, on average, than those in government schools. The t-statistic of -2.14 indicates that the mean of the government school is lower than the mean of the PEF. The negative sign indicates that the government schools' mean is less than that of the PEF schools. The two-tailed p-value of 0.0345 is below the common alpha level of 0.05, suggesting that there is a statistically significant difference between the means of the two groups. It indicates that the mean score of government schools is significantly lower than that of PEF schools. Figure 20 serves as a comparison tool to assess the effectiveness of PEF versus SED schools in producing SSC results. The figure provides a comparative trend of SSC results between PEF schools and government schools located in the same locality. This aids in understanding the effectiveness of different school systems in the vicinity and indicates the better educational quality of PEF schools.

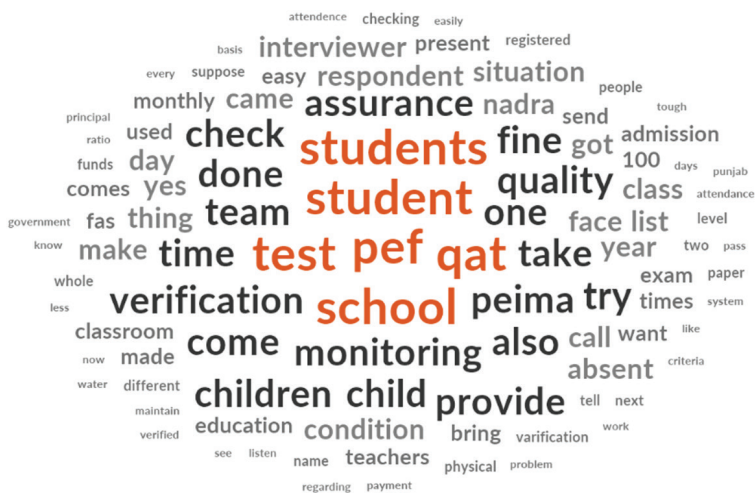
Figure 20: Comparative SSC Results



Source: Comparative SSC Results (2023) from a sample of PEF schools and SED schools within the same locality compiled for this project

The qualitative data revealed that the quality of education in PEF and PEIMA schools is rigorously monitored and verified through several mechanisms, including verification, monitoring, and QAT, as shown in the NVivo results in Figures 21 (word cloud) and 22 (coding of quality in data).

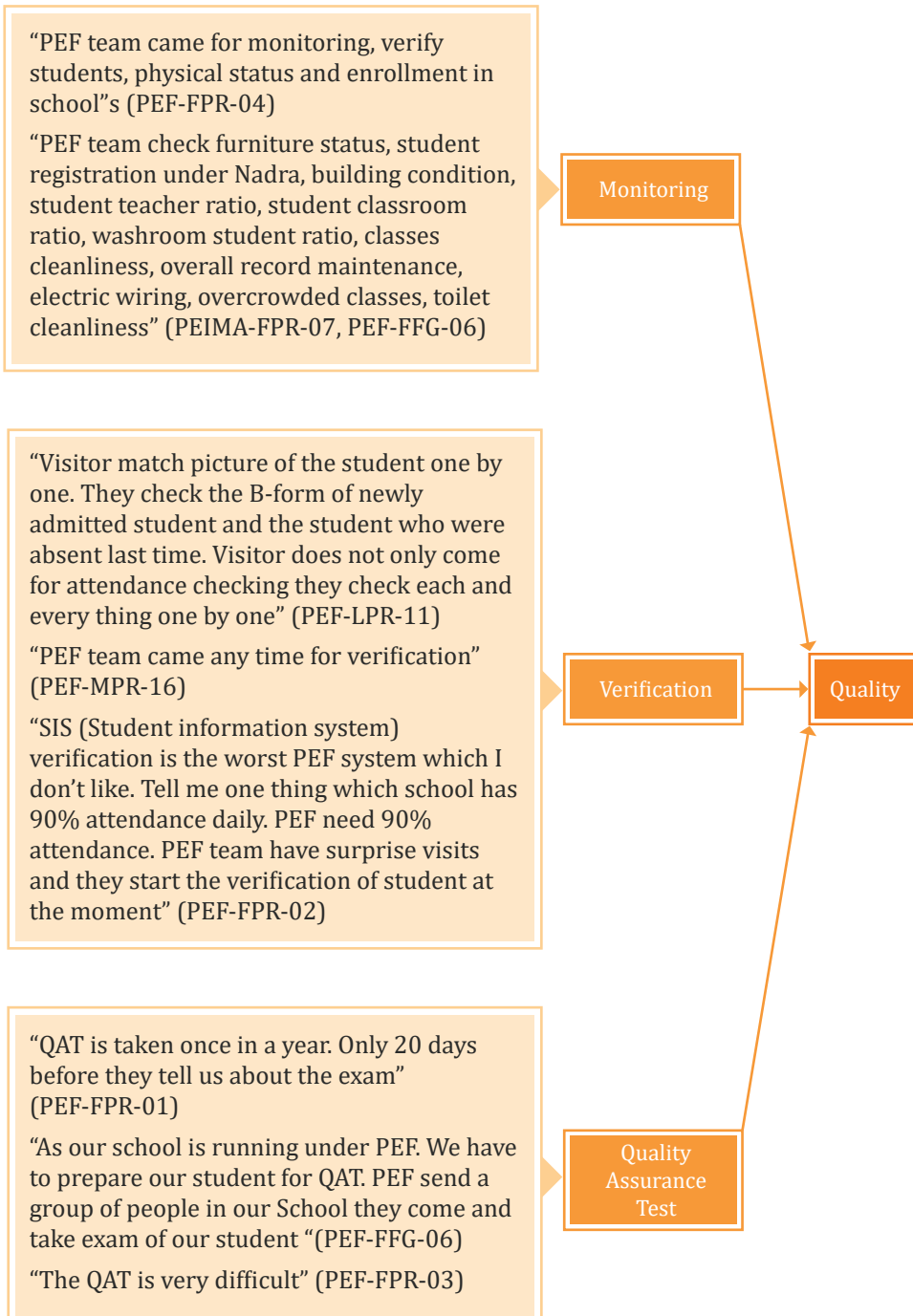
Figure 21: Quality Word Cloud



Source: Authors' visualisation.



Figure 22: Quality Data Structure





Quality Assurance Test (QAT)

The Quality Assurance Test (QAT) is used by PEF and PEIMA to monitor school performance, with annual student assessments aimed at maintaining educational standards. However, the QAT standards differ between the PEIMA and the PEF. The PEIMA administers subject-specific exams similar to the BISE system, whereas PEF conducts multiple course exams in a single day, selecting students randomly just two weeks prior. Respondents expressed concerns about random student selection. One said, *"It depends on our luck; the result is 100% if an intelligent student is selected. However, if the majority of the weak students get selected, then it becomes a challenge for the school"* (PEF-FFG-06). The passing criteria for QAT vary, with FAS having the toughest target at 75%. A respondent stated, *"If FAS's school is less than 75%, then it will be considered a failure"* (PEF-FFG-06). This puts pressure on teachers, who often work late to complete the syllabus. One teacher shared, *"Teachers mostly stay in school up to five o'clock to cover the whole syllabus"* (PEF-LFG-12).

The QAT is viewed as overly difficult. One respondent noted, *"QAT was meant for quality assurance, but it has become a full-fledged examination... all other aspects of education are neglected... We have no time for extra-curricular activities"* (PEF-MPR-17). Additionally, a school principal highlighted the issue of reduced school days, saying, *"We have hardly 130 working days due to so many off days, making it unrealistic to complete the curriculum effectively"* (PEF-MPR-17).

Respondents suggested aligning the QAT with student abilities, reducing the syllabus, and addressing external challenges like limited school days to reduce the burden on both students and schools.

Students' Verification

Monitoring and verification are key to maintaining educational quality in PEF and PEIMA schools. Monthly verification and triannual monitoring ensure compliance with standards. One respondent shared, *"We have monitoring three times a year, and monthly verification is done"* (PEF-LPR-13). However, many viewed the process as overly strict, with penalties for minor issues, such as a water cooler left on. PEF monitors visit every 1-2 months to verify student attendance, cleanliness, and infrastructure. Verification includes checking attendance through CNIC data and photographs. A respondent explained, *"PEF monitors verify students physically, taking pictures and ensuring their presence"* (PEF-MPR-17). Schools strive to follow SOPs and uphold academic standards through routine monitoring, daily documentation, and surprise visits.



Monitoring of Infrastructure Requirements

PEF's monitoring processes ensure high educational and infrastructure standards in partner schools through regular and surprise visits, assessing student verification, attendance, cleanliness, infrastructure, and overcrowding. While these practices ensure quality, they can be challenging for schools due to rigid implementation and penalties for minor infractions. For example, one respondent said, *"If there are more than 30 students in a classroom, PEF fines the school, often charging PKR 50,000 or 1 lac (PKR 100,000)"* (PEF-FPR-05).

Respondents praised PEF's transparency and integrity, highlighting the absence of corruption. One shared, *"You cannot influence the PEF team to take any favour; they are strict about maintaining integrity."* When the monitoring team had lunch at a school during a visit, the team was immediately dismissed to prevent any potential bias: *"Once the monitoring team had lunch at a school, but after hearing about it, the team was fired to ensure such practices don't happen again"* (PEF-FPR-05).

PEF's monitoring teams have contributed positively by ensuring high standards for cleanliness, infrastructure, and teacher-student ratios. One respondent noted, *"PEF's visits ensure that schools maintain a minimum standard of infrastructure, which ultimately benefits the students"* (PEF-FPR-08). PEF's strict student verification process also ensures transparency and prevents fraud: *"PEF's verification process helps ensure transparency in the system, preventing ghost students"* (PEF-FFG-06). While payment delays due to incomplete verification pressure schools, they also encourage accurate record-keeping. *"PEF only provides funds for students who have been physically verified"* (PEF-FPR-04).

However, timing of visits causes stress, particularly during wedding seasons, wheat harvesting, or religious occasions or months. High absenteeism during these periods often results in penalties. One respondent highlighted, *"During Muharram, despite most of our students being Shia and observing the day, the PEF team conducted verification"* (PEF-MPR-17)



Inter-Organisational Relations between PPPs and Partner Schools

The relationship between PEF and partner schools was coded in several categories, as discussed below.

Hierarchical Communication

PEF and PEIMA maintain a hierarchical, top-down relationship with partner schools, where schools must comply with instructions and notifications, with minimal involvement in decision-making. Communication typically flows through principals or school owners, with teachers having limited direct interaction with PEF. Despite regular meetings, schools feel that their concerns are often ignored. One principal noted, *"We have meetings with PEF officials regularly, but our concerns, especially about the syllabus and exam schedules, are rarely addressed"* (PEF-MPR-15). Efforts to address issues like the stringent QAT and rigid syllabus often lead to no changes.

Dominance and Control

PEF is perceived as the dominant party in the relationship, exerting significant control over school operations. This includes decisions on syllabus, exams, and even operational funds. *"PEF has all the control. We have to follow their directives without any say in the matter,"* (PEF-MPR-15) said a frustrated principal. The principals of the schools feel they have little to no power in decision-making processes, which leads to a weak collaborative spirit.

Operational Frustrations

There are numerous instances of frustration due to delayed payments and fines imposed by PEF, which exacerbate operational difficulties for schools. *"The delayed payments and sudden fines make it very hard for us to manage our operations smoothly,"* (PEF-MPR-01) noted a school administrator. The rigid and sometimes unrealistic expectations of PEF regarding student performance and school operations add to the conflict. Schools feel that their practical challenges are not acknowledged or accommodated. The issues of delayed payments are also reported in the partner schools of PEIMA. The irregular and delayed payments from PEF create significant financial and operational difficulties for schools, affecting their ability to function smoothly. Despite the assurance of per-student funding, schools report delays and inconsistencies in receiving these funds.



Strained Trust

Trust between PEF and the schools is strained. Schools express a lack of trust in PEF's ability to understand and address their practical constraints and operational challenges. One teacher expressed, *"There is no trust. We don't believe PEF understands or cares about the difficulties we face daily"* (PEF-MPR-15). The late disbursement of funds and fines for non-compliance with strict guidelines contribute to a lack of trust and feelings of insecurity among school administrators.

Perception of Inequality

Schools perceive an inequality in the partnership. The governing PPPs (both PEF and PEIMA) are seen as not treating schools as equal partners, but rather as entities that must comply with their directives without adequate support or consideration of their specific needs. *"We are not treated as partners but as entities that must comply with every directive without question,"* (PEIMA-FPR-07) commented a school principal. The respondents highlighted several concerns that create the perception of inequality in the relations between PPPs and partner schools. Schools express a desire for more autonomy and authority in managing their operations. They feel that PEF's strict control limits their ability to effectively manage and improve their educational environment.

Therefore, the relationship between PPPs and partner schools in Punjab is complex and marked by significant challenges. While there is a framework for coordination, the dominance of PEF and PEIMA, lack of effective collaboration, strained trust, and numerous operational challenges undermine the potential for a truly effective partnership. Schools seek more recognition as equal partners and a more responsive and supportive approach from the governing bodies to address their practical needs and constraints.

Challenges and Success Factor: Value Creation/Destruction

Data from the interviews reveal a major theme of value destruction and a minor theme of value co-creation. The major codes that emerged for value co-destruction include less parent involvement, minimum involvement of technology, no pedagogical innovation, lack of trust, and conflict between the schools and the governing body.



Low Parent Involvement

The data highlights minimal parental involvement in PEF and PEIMA schools, with many parents showing apathy toward their children's education despite scheduled parent-teacher meetings. One principal remarked:

"They don't look at anything. They have to see that the kids are being taught for free. There are very few people who look at the quality, discipline" (PEF-MPR-15)

This lack of engagement negatively impacts educational outcomes and the value of public-private partnerships. Underlying factors such as socioeconomic challenges, cultural norms, and communication gaps may hinder effective parental involvement. Respondents noted that parents often prioritise personal or family responsibilities over schooling, with one explaining, *"Many parents prefer their children to earn for the family rather than attend school."* This traditional mindset further exacerbates attendance and engagement issues.

Conflict

The governing bodies, PEF and PEIMA, operate within a hierarchical structure where decisions are made at the top and passed down without consulting school principals. This top-down approach often creates conflicts. One respondent noted, *"Conflicts occur frequently due to lack of communication and resource constraints"* (PEIMA-KPR-09). Curriculum changes, delays in fund release, and late provision of books exacerbate challenges for principals and teachers in completing the syllabus. Respondents expressed concerns about the difficulty and relevance of the syllabus within the allotted time.

Although governing bodies enforce strict monitoring and control mechanisms to ensure compliance, these conflicts undermine collaboration, leading to "value co-destruction." This results in decreased student learning outcomes (SLOs), inefficient resource use, and a weakened educational ecosystem.

Less use of Technological Innovation

The data highlights a significant aspect of value co-destruction in the public-private partnership (PPP) model in education. While the partnership aims to improve access, curriculum, technology integration, and pedagogical innovation, evidence suggests limited advancements in these areas. Teaching methods remain conventional, with negligible use of technology in education.



One principal shared, *"We don't have a proper social media platform, website, or portal. I asked teachers to create WhatsApp groups with students, but most couldn't because parents don't have smartphones—only basic phones"* (PEF-FPR-02).

Respondents also pointed to inadequate facilities, such as laboratories, computer labs, and libraries, further underscoring the missed opportunities for technological and pedagogical improvements within the system.

Lack of Trust in the School

One of the most important and substantial components of a partnership is trust. One of the important themes that emerged from the data related to value co-destruction is a lack of trust among the parties, which is evident from most of the respondents' interviews:

"We have to face so many difficulties from PEF" (PEF-FPR-01)

Furthermore, there is limited evidence found regarding the improved quality of education in PPP initiatives, particularly in terms of pedagogical innovation and the use of technology. While PPP partnerships may seek to introduce innovative teaching methods and leverage technology to enhance the learning experience, the data indicate that this progress is minimal. This could be due to various reasons, such as limited resources, lack of pedagogical training for teachers, or inadequate infrastructure for implementing technology-driven teaching methods.

Challenges of Marginalised Communities

Parents frequently express dissatisfaction with the physical condition of school buildings, insufficient classroom space, and inadequate learning materials like textbooks and technology. Some of the parents in marginalised communities expressed safety and security concerns about children travelling to and from school, as well as within school premises. Parents worry about the risk of violence or bullying in under-resourced environments. Even when government education is free, parents may face additional costs such as uniforms, transportation, and supplies, which can be burdensome for low-income families.

"The school building is old, with leaking roofs and broken desks. It's hard for kids to focus on learning in such an environment." (COM-FGD-02)



"I'm scared for my child's safety. They have to walk through rough neighbourhoods just to get to school. What if something happens to them?"
(COM-FGD-03)

Cultural Barriers and Regional Differences

Culture and society attitudes substantially hinder educational prospects, especially for girls. Many rural areas still have high rates of early marriages, especially where females are seen as homemakers rather than capable of higher education. As a result, families place a higher priority on household duties than on education for girls. Such thinking hinders many girls from attending school, especially in high school, and reinforces gender inequality. Such biases are found to be more prevalent in South Punjab, where early marriages are more common. On the other hand, male students drop out of school to work in informal or skill-based jobs to support their families. Their access to formal education is weakened by this financial necessity, which prolongs poverty cycles and restricts their opportunities for upward mobility.

Access to education is made more difficult by structural constraints in rural and underdeveloped regions like Dera Ghazi Khan. Since the languages spoken at home may differ from the medium of teaching in schools, language difficulties can make it difficult for students to study properly. Significant difficulties are also presented by transportation difficulties in these areas. The prolonged and risky travels that many kids, particularly girls, must make to get to the closest schools discourage families from making education a top priority. Girls are especially impacted by inadequate infrastructure and inaccessible educational opportunities since they are frequently kept at home because of cultural or safety constraints.

In South Punjab, the effects of the flood on educational facilities are also more prominent. Children lack adequate educational facilities as a result of the frequent floods that have ruined classrooms, schools, and learning facilities in areas like Dera Ghazi Khan. In times of crisis, many schools are turned into shelters, which delays instruction. In addition to further isolating communities, damaged roads and bridges prevent access to schools, particularly for girls who already face cultural restrictions. Children are deprived of essential learning opportunities as a result of the weak infrastructure reconstruction, which also prolongs poverty and illiteracy.



Value Addition

Although the data explicitly depicts value co-destruction due to the challenges faced by the school administration and the communication gap between the parties, one of the important themes that emerged from the data is value addition. It is important to note that PPP holds a significant place in the education sector, and multiple pieces of evidence from different sources indicate the value addition phenomenon. The value addition can be attributed to the increased access to education for the community, including the marginalised ones.

School administration plays an important role in creating value for the education system. This value creation leads to an improvement in the overall quality of education. The dedication and efforts of the school staff contribute to this value co-creation process.

The value co-creation between the school administration and the staff is evident in the improved quality of education. In other words, the school administration, through its policies, resource allocation, and strategic decisions, creates value that positively impacts the education. This is achieved through the collaborative efforts and dedication of the school staff, who are actively involved in the value co-creation process. School administration has shown an important role in creating value, which, in turn, improves the quality of education. This behaviour can be attributed to the dedication of the school staff in the process, and therefore, the value of co-creation is evident.

Most of the respondents indicated increased access, which is the value of co-creation in the community due to this partnership arrangement. The partnership has provided access to the majority of the community, and schools working under the partnership have not only provided access but have also changed the typical percentage of the public schools.

A very interesting point identified from the data is that principals of various schools often take on additional responsibilities beyond their traditional role as administrators. They serve as ambassadors for the school, engaging in marketing activities, convincing, and mobilising the community to prioritise education, which is clearly a sign of value co-creation in the data. By taking on these additional roles, principals contribute to the overall value addition in schools. Their efforts in marketing the schools for free help in attracting more students and creating a positive perception of the institution in the community. This, in turn, can increase enrolment rates and improve the financial sustainability of the school.

Furthermore, by convincing and mobilising the community to prioritise education, principals play a crucial role in creating a supportive environment for learning. They act as change agents, advocating for the importance of education and encouraging community members to actively participate in the education process. This community involvement can lead to increased parent engagement, volunteerism, and other forms of support, all of which enhance the overall quality of education provided.

The involvement of principals in these value-adding activities can also be seen as a form of co-creation. In this case, principals, as well as community members, work together to create an environment conducive to learning and educational success. By actively engaging with the community and involving them in decision-making processes, principals ensure that the needs and preferences of the community are taken into account, resulting in a more inclusive and effective educational experience. Overall, the multiple roles played by principals in marketing the schools, convincing and mobilising the community, and fostering co-creation contribute to the value addition in schools in the context of PPP education initiatives. Their efforts not only enhance the reputation and financial sustainability of the schools but also create a more supportive and engaging educational environment for students.

Parental involvement plays a crucial role in ensuring the success of educational initiatives. When parents are engaged and actively participate in their children's education, it can lead to better academic outcomes and increased access to educational opportunities. However, the data suggest that in many PPP initiatives, there is a lack of meaningful parental involvement. This could be due to various factors such as limited awareness, disinterest, or even logistical challenges faced by parents in engaging with the school.

6. DISCUSSION

This study finds an increase in the enrolments in PEF and PEIMA schools, whereas there has been a linear trend in access to education in recent years, indicating that the PPP arrangements in education have increased accessibility to education significantly. However, quality and equity remain a big concern.

The findings highlight a mixed impact of PPPs on access to education in Punjab from 2016 to 2023. While the number of schools decreased in both SED (7.8%) and PEF (5.2%), PEIMA exhibited significant growth, increasing its schools from 996 to 4,276. Enrolment trends were more positive, with SED,



PEF, and PEIMA reporting increases of 6.5%, 15.4%, and a dramatic jump from 118,296 to 614,166, respectively. Additionally, the percentage of OSC in Pakistan declined from 44% in 2016-17 to 39% in 2021-22, despite the absolute number rising due to population growth. These trends suggest that PPPs have effectively enhanced enrolment and access to education, though challenges persist in addressing the absolute OSC figures and ensuring sustainable expansion.

Though access is improved, the findings reveal persistent equity challenges. Participation rates consistently exceed net enrolment, indicating barriers to retention, particularly among marginalised groups. The quantitative data revealed that wealth and gender disparities are significant, with wealthier groups and males consistently showing higher enrolment and lower dropout rates compared to poorer groups and females. Qualitative data endorsed that systemic obstacles, such as reintegrating OSC and supporting underprivileged students, persist in Punjab.

Retention gaps among disadvantaged groups are mirrored in qualitative findings, revealing limited resources for slow learners. Schools face challenges balancing equity goals with stringent QAT requirements, often sidelining these students. Both datasets highlight systemic failures in supporting students with disabilities. Schools lack resources, and abandoned inclusive education programs leave special needs students without adequate support. To some extent, programmes like EVS and the Ehsaas initiative offer financial aid, encouraging school attendance among poor families. However, these financial aids are not widely available, which creates hindrances. Moreover, gender disparities remain a significant challenge, such as the limited availability of girls' schools, which forces many girls to travel long distances, impacting their access and retention in education.

Socioeconomic barriers also persist, with families facing financial difficulties often resorting to child labour to support household incomes. This dual responsibility of school and work affects children's academic performance and retention rate. The reintegration of OSC is hindered by behavioural challenges and inconsistent programme funding, as reflected in both data sources, underscoring the need for sustainable initiatives and tailored support. Additionally, administrative hurdles, such as managing student transfers between PEF schools, pose additional complexities. Delays in administrative processes can lead to instability for students, potentially contributing to dropout rates. The findings collectively emphasise the need for systemic reforms, resource enhancement, and targeted interventions to address educational inequities.

These findings resonate with the challenges of slow learners highlighted in the literature (Darling-Hammond, 2015). Inclusive education initiatives often fail due to insufficient resources and support, aligning with global findings on the challenges of implementing inclusive education in resource-constrained settings (Azorín & Ainscow, 2020). Addressing the needs of OSC remains problematic, particularly those with behavioural issues from labour backgrounds, a challenge echoed in broader studies on the reintegration of marginalised children into formal education (UNESCO, 2021). Achieving true educational equity requires comprehensive legislative support, adequate funding, and a steadfast commitment to inclusive practices, ensuring all students receive equal opportunities to succeed (Reardon, 2011).

The study finds that despite a rise in student numbers, there is a decrease in the number of schools, which raises concerns about overcrowding and reduced individual attention. Teacher qualifications, as shown by the data, are a major factor influencing quality. A significant proportion of teachers (84%) have less than 14 years of education, which limits their ability to meet diverse teaching needs. This shortage of qualified teachers is further compounded by the growing enrolment. The performance comparison between Grade 5 and Grade 8 students (LSA conducted by PEC) across schools shows that PEF schools, despite having less qualified teachers, deliver similar outcomes to government schools at a lower cost, with a noticeable gap between PEF and PEIMA schools. The implementation of QAT, physical verification, and other monitoring mechanisms ensures high educational standards but also imposes significant pressures on schools and educators. Strict QAT criteria, especially the 70% passing criteria in PEF's FAS program, force schools to focus primarily on exam preparation, neglecting broader educational goals like creativity and extracurricular activities.

Monitoring and verification processes in both PEF and PEIMA schools are strict but often penalise schools for minor infractions, adding to operational stress. Schools are required to document compliance daily, and even minor issues can result in penalties, adding to the administrative burden, which is well noted in literature (Patrinos et al., 2009). Despite these challenges, the need for better-qualified teachers, aligned assessments, and more flexible monitoring is evident to improve the overall educational quality and reduce the pressure on schools and teachers.

The study's findings on the inter-organisational relations between PPPs and partner schools in Punjab reveal a complex dynamic that aligns with and diverges from existing literature on PPPs in education. The hierarchical communication between PEF/PEIMA and partner schools, characterised by a



top-down approach, is consistent with findings from Barrera-Osorio et al. (2022), who note that many PPPs in education tend to adopt centralised management structures. This top-down approach often leads to schools feeling marginalised in decision-making processes. This hierarchical communication can hinder effective collaboration and responsiveness to on-the-ground challenges, as also noted by Patrinos et al. (2009), who argue that more inclusive communication strategies can improve PPPs' effectiveness.

The dominance of PEF over school operations, including decisions on the syllabus, exams, and operational funds, reflects a significant power imbalance. This finding aligns with Verger (2016), who discusses how PPPs can often result in the private or managing entity exerting substantial control, sometimes to the detriment of local autonomy and innovation. The literature suggests that for PPPs to be effective, there needs to be a balance of power that allows for shared decision-making and mutual respect, which is evidently lacking in this context (LaRocque, 2008).

Operational frustrations (such as delayed payments, fines, and an insufficient number of books) exacerbate the challenges faced by partner schools. These frustrations are echoed in the broader literature, where PPPs often struggle with financial sustainability and timely disbursement of funds (McCloughlin, 2015). Similar issues have been documented in other PPP contexts, where financial uncertainties can disrupt educational delivery and affect school performance (Rizvi, 2016). The strained trust between PEF and partner schools, due to perceptions of neglect and inadequate support, aligns with findings from the literature on the importance of trust in PPPs (Khan & Jamil, 2023). Schools expressed a lack of confidence in PEF's understanding of their daily challenges. Trust is a critical component of effective partnerships, and its absence can lead to inefficiencies and dissatisfaction (Linder, 1999).

The perception of inequality in the relationship, where schools feel treated as subordinates rather than equal partners, is a significant barrier to effective collaboration. The literature on PPPs in education, such as the work by Ball (2007), highlights that successful partnerships require recognising and addressing power asymmetries. The study's findings reveal the imbalance in the inter-organisational relations. For PPPs to foster innovation and improvement in educational outcomes, there needs to be a genuine partnership ethos, as suggested by Davies & Hentschke (2006).



The data analysis on the value addition and value destruction under the PPP's initiatives revealed that the major themes that emerged from the data were value destruction and, to a lesser extent, value co-creation. The key issues reported included less parental involvement, conflict between schools and governing bodies, the use of technological innovation, and trust. One of the major findings of the study is the minimal involvement of parents in their children's education within PEF and PEIMA schools. Despite the scheduled parent-teacher meetings, many parents remain disengaged and indifferent to the quality of education. This lack of parental involvement is a significant barrier to the success of PPPs in education. According to Barrera-Osorio et al. (2022), active parental engagement is crucial for improving educational outcomes. The data from this study reveal that parents often view education as the sole responsibility of the schools and do not see the value of their involvement, which aligns with findings from the broader literature on the socio-economic barriers and cultural norms that can hinder parental engagement (Rizvi, 2016).

The study also found substantial conflict between the schools and the governing bodies, primarily due to a lack of communication, resource constraints, and bureaucratic inefficiencies. This aligns with Verger (2016), who notes that conflicts in PPPs often arise from unclear roles and responsibilities, leading to operational inefficiencies. Respondents highlighted issues such as delayed funds, insufficient resources, and challenges with curriculum changes, which exacerbate these conflicts. Effective communication and resource allocation are critical for the success of PPPs, as they help build trust and cooperation between partners (Khan & Jamil, 2023).

The data indicate a significant gap in the use of technology and pedagogical innovation in PEF and PEIMA schools. The literature suggests that one of the key benefits of PPPs is the potential to introduce modern teaching methods and technological advancements (LaRocque, 2008). However, the findings show that the teaching methods in these schools remain conventional, with negligible use of technology. This lack of technological integration not only limits the quality of education but also fails to meet the evolving needs of students in a digital age. The absence of facilities like computer labs and libraries further hinders the educational experience, highlighting a missed opportunity for value creation through technological innovation.

Trust is a fundamental component of successful partnerships, yet the study reveals a significant lack of trust between the schools and the governing bodies. This mistrust is evident in the complaints about the stringent



monitoring and frequent fines imposed by PEF, which schools perceive as punitive rather than supportive. According to Linder (1999), trust is essential for effective collaboration in PPPs, and its absence can lead to inefficiencies and a lack of motivation among partners. The data suggests that building a more transparent and supportive relationship could enhance trust and improve the partnership's overall effectiveness.

Despite the prevalent issues of value destruction, the data also reveal instances of value co-creation, particularly through community engagement and the proactive role of the partner schools to mobilise and reach out to the community to access education. Some respondents noted that local communities emphasise the importance of schooling and encourage school enrolment, even if the quality of education is not a primary concern for parents. This community involvement can be seen as a positive step towards value co-creation, as it reflects a collective acknowledgement of the importance of education. However, to truly realise the benefits of PPPs, this initial engagement needs to be expanded into more active participation and investment in educational quality by both parents and communities. Implement more targeted outreach programs and scholarships to increase enrolment from marginalised groups, in particular, girls, minorities, and children with disabilities.

Overall, while the study highlights significant challenges within PPP initiatives in education, it also identifies pathways for improvement through targeted interventions and strategic enhancements in governance, community engagement, and technological integration. Addressing these issues could lead to more sustainable and impactful educational outcomes in PPP schools.

7. CONCLUSIONS

In conclusion, this study highlights the significant progress made by PPPs in increasing access to education in Punjab from 2016 to 2023, particularly through the growth in enrolments in PEF and PEIMA schools. PEF schools are giving similar student performance as compared to government schools in Grade 5 and Grade 8 results, whereas they outperform government schools in Secondary School Certificate (SSC) results, which is encouraging given their significantly lower per-child cost. This suggests that PPPs are achieving better outcomes more efficiently. While enrolment trends have shown promising improvements, with notable reductions in OSC, challenges related to equity

and quality persist. Disparities based on wealth, gender, and special needs remain substantial, and systemic obstacles to retention, particularly among marginalised groups, continue to hinder progress.

The study also identifies the negative impact of overcrowding, inadequate teacher qualifications, and rigid monitoring processes, which compromise educational quality and create operational pressures on schools. Additionally, issues of trust, communication, and resource constraints between PPP governing bodies and partner schools exacerbate these challenges, limiting the potential for value co-creation. Despite these hurdles, the study suggests that targeted interventions, such as enhancing community engagement, increasing parental involvement, and integrating technology, could improve both access and quality in PPP schools. The criteria for quality assessment also need reconsideration. Ultimately, the findings call for comprehensive reforms in governance, resource allocation, and inclusive practices to ensure that PPPs contribute to equitable and high-quality education for all students in Punjab.

The study focuses on PPP schools in Punjab, which may not fully represent the educational challenges and impacts in other regions of Pakistan. This limits the generalisability of the findings to the broader national context. The study relies on data from available records and reports from PEF, PEIMA, and other educational bodies, which may be incomplete or subject to bias. The equity statistics were found till the year 2019, which do not depict the recent trends. The qualitative data collected through interviews or FGD may be subject to social desirability bias, where respondents may provide answers that they believe are expected or preferred by the interviewer, rather than their true experiences.

8. POLICY IMPLICATIONS AND RECOMMENDATIONS

The key public policy relevance points of the study include:

Address the Shortage of School Facilities

The government policy is primarily focused on shifting the non-performing public schools to PEIMA, whereas the enhancement of the current infrastructure and the establishment of new schools have not received much attention. The schools are overcrowded and working at full capacity, and the current number of schools cannot handle the enrollment crisis.



Action steps:

- ▶ The government needs to increase the number of PEF schools, particularly in EVS and NPS programmes, to cater to the marginalised and underprivileged population.
- ▶ The strategy of shifting non-performing schools to PEIMA should be continued.
- ▶ The infrastructure of current schools should be enhanced to accommodate more students.

Improving Teacher Qualifications and Compensation

Teacher qualifications and expertise are critical areas for improvement in PEF and PEIMA schools. Currently, most teachers have only a matriculation or intermediate qualification, and their pay is below Pakistan's minimum wage, raising serious concerns about the quality of education in these institutions.

Action Steps:

- ▶ PPP management should raise the minimum qualification for teachers in PPP schools to at least a bachelor's degree in education or a related field.
- ▶ The government should ensure that teacher salaries are aligned with Pakistan's minimum wage.
- ▶ PPP management should implement teacher training programs focusing on modern pedagogical techniques, digital literacy, and inclusive education practices.
- ▶ Establish a teacher certification process to ensure quality standards.

Holistic Definition of Quality Education

Currently, PEF and PEIMA have too much focus on student grades and school enrollment. They need to incorporate factors like teacher qualifications, student engagement, and extracurricular activities in the quality metrics of PPP schools. Currently, creativity and critical thinking are largely absent in schools. Exams prioritise rote memorisation over critical analysis, and teachers focus primarily on completing the syllabus, leaving little room for extracurricular activities.

Action steps:

- ▶ PPP should develop a balanced QAT that evaluates not just academic outcomes but also the holistic growth of students.
- ▶ PPP should provide separate funds to schools for extracurricular activities such as art, music, and sports.

Revision in Per-Child Fee

The current fee (PKR 650 per primary student) is too low to provide quality education. The per-child fees need to be enhanced considering the inflation rate in the economy.

Action Steps:

- ▶ The government should increase the budget of PEF and PEIMA
- ▶ PPP management needs to expedite alternate sources of funding, engaging private sector donors to contribute to the provision of education under their corporate social responsibility (CSR) initiatives.
- ▶ PPP management should increase the per-child fee based on a realistic calculation.
- ▶ PPP schools should enhance the compensation of teachers.

Strengthening Partnerships and Trust

The relationship between PPPs and partner schools is largely strained, conflictual, bureaucratic, and lacks trust. Representation of partner schools in policy matters is largely absent.

Action steps:

- ▶ PPP management should establish bi-annual forums for stakeholder feedback and collaboration.
- ▶ Appoint a dedicated liaison officer for every cluster of PPP schools to address grievances and foster trust.



Parental Awareness and Community Engagement

Parents are largely ignorant and less concerned about the quality of education provided to their children. PPP schools can play a major role in reaching out to the parents and community to enhance awareness of education and the importance of their involvement.

Action steps:

- ▶ PPP management and PPP schools should organise community events and workshops to educate parents on the value of quality education.
- ▶ Develop parent-teacher committees to bridge the communication gap and encourage parental involvement.

Enhancing Inclusivity in Education

PEF and PEIMA should mandate that schools reserve a specific quota (e.g., 10%) for marginalised students, including those from low-income backgrounds and disabled. Redesign the admission criteria to focus on a mix of performance potential, socio-economic background, and special needs, rather than solely on performance metrics.

Action Steps:

- ▶ PPP management should conduct equity audits annually to evaluate the implementation of the inclusivity quota.
- ▶ PPP management should allocate budget for infrastructure catering to marginalised groups (e.g., ramps, special classrooms, assistive technologies, and provision of tools such as audio-visual aids and wheelchairs).
- ▶ PPP management should develop and monitor separate attendance and QAT performance criteria for marginalised and disabled students.
- ▶ PPP schools should not restrict the school's entry through admission tests.



Investment in Technological Infrastructure

Schools lag in the use of technological innovation in teaching methodologies. Schools need to introduce technology-based learning tools, such as smartboards, and online resources.

Action steps:

- ▶ Allocate a dedicated budget for purchasing and maintaining technological equipment.
- ▶ Conduct teacher training programs on the integration of technology in classrooms.
- ▶ PEF and PEIMA school teachers should be included in the Prime Minister's laptop distribution scheme.
- ▶ In order to foster transparency and trust between the schools and the governing bodies, biometric attendance devices must be installed in PEF and PEIMA schools. This technology will allow students to record their attendance every day using biometrics, guaranteeing automatic data updates and reducing the possibility of errors and manipulation.



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JOB SATISFACTION OF WOMEN SHIFTING FROM TRADITIONAL TO ONLINE WORK IN PAKISTAN

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ABSTRACT

The online job market is transforming the workplace, offering more autonomy and flexibility, including remote work and telecommuting. The COVID-19 pandemic has accelerated telework adoption, impacting women who have historically faced barriers in traditional jobs. Using Schlossberg's Transition Theory, this study investigates how the online job market affects work dynamics, with a focus on women. Data on job satisfaction and related characteristics were gathered through an online survey. The study focuses on the job satisfaction of those Pakistani women who shift from on-site to online work. The study highlights a key trade-off between the stability offered by on-site jobs, which are valued for their structured benefits and teamwork, and the autonomy provided by online work, driven by flexibility, higher earning potential, and shorter working hours. It reveals that younger, unmarried women dominate online jobs, utilising digital skills and autonomy, while older women tend to prefer on-site roles for the financial security and routine they offer, reflecting distinct demographic preferences. The findings underscore the economic dynamics of job satisfaction, emphasising the importance of education, non-salary benefits, and income stability in shaping women's employment choices. These insights underscore the transformative impact of transitioning to online employment for Pakistani women, suggesting policy measures to further optimise this shift and promote women's economic empowerment. The study recommends enhancing compensation structures, promoting flexible work policies, and launching digital literacy programs to support women's participation in both on-site and online work environments, addressing income variability and access to opportunities in the digital

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economy. Policy recommendations emphasise the need for a national regulatory framework for online work platforms, mental health support, tax incentives for employers, and inclusive infrastructure development, alongside lifelong learning initiatives and a time use survey to better align labour market policies with women's needs.



1. INTRODUCTION

Introduction and Background

The workplace is changing dramatically as more autonomous and flexible work arrangements replace traditional employment³ structures. The flexibility and autonomy offered by the online job market, which lets people choose their own jobs, work from anywhere, and balance their personal and professional lives, are contributing to its growing popularity. Technological improvements are well-recognised as working remotely has become easier and offers a wide range of professional prospects. By enabling freelancers to work with a variety of clients and enterprises, freelancing on the internet job market also benefits the world's talent pool (Bashar, 2023). In terms of the economy, independent contractors can bargain for lower pricing, take advantage of tax breaks, and serve as a buffer during recessions. Technological developments, such as the ease of working remotely, also support the expanding trend of the online employment market (UNDP, Pakistan, 2022).

Payoneer reports that Pakistan's freelance economy is developing at the eighth-fastest rate in the world, with a growth rate of 69%. This demonstrates the nation's potential for income from online freelancing sources. The process has been made simpler by technological improvements, which provide easily available terms and conditions on multiple websites. Pakistanis now have access to a wide range of income-generating options.⁴ These opportunities illustrate the flexibility and creativity of the Pakistani workforce, which possesses definite talent and expertise in many fields (Taimoor, 2022).

The COVID-19 Pandemic has changed the nature of employment, with the evolution of telework being one of the most dominant trends. The research conducted to investigate how COVID-19 has influenced the overall job satisfaction in the telework environment is quite intriguing. For example, a current study, Allassaf et al. (2023), shows that a large percentage of teleworkers are satisfied with their teleworking experiences.

The search for job satisfaction is an essential pursuit in people's lives as it affects their performance and motivation in the workplace. Job satisfaction can be described as the degree of satisfaction that employees have with their jobs, which includes working conditions, remuneration, and chances of promotion (Inayat & Khan, 2021). The labour market, also referred to as the employment market, is a place of convergence of the supply and the demand

³ Here traditional jobs refer to on-site jobs.

⁴ Including drop shipping, online education, tutoring, advertising, sponsorships, content creation, e-commerce, online marketplaces, surveys, microtasks, affiliate marketing, and user testing for mobile and website applications.



for new jobs. This market can grow or shrink due to many factors, such as the general health of any economy and the job market's unpredictable demand or lack of demand for a specific set of skills within that economy (Cook, 2022).

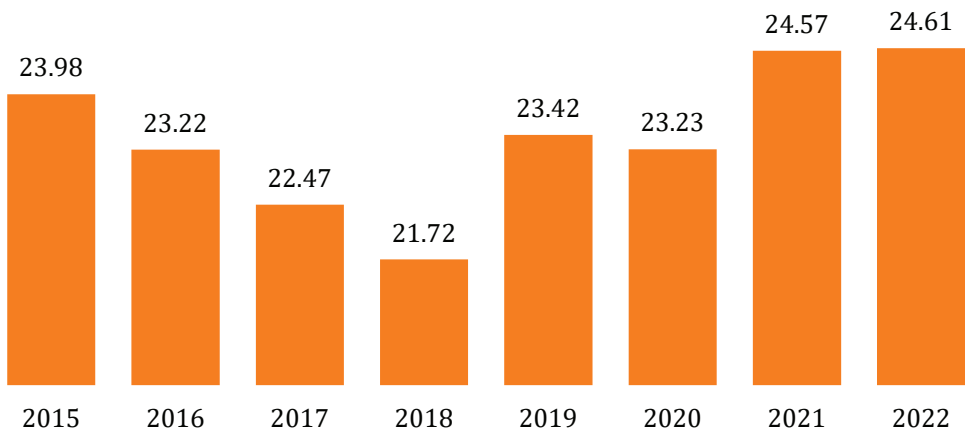
Pakistan, like many other countries, has witnessed dynamic changes in its job market, driven by technological advancements and shifting labour market trends. One notable development has been the growth of the online job market, which has provided new avenues for employment and transformed the way individuals work (Robertson et al., 2016). This transition has significant implications, particularly for women, who have historically faced numerous barriers to entering and advancing in the traditional job market due to cultural norms, limited access to education, and gender-based discrimination (Tabassum & Nayak, 2021).

The female population in Pakistan constitutes approximately 48.4% of the total population, reflecting a significant demographic presence. However, only 14% of adult women have an education beyond Grade 12, highlighting a gender gap in transitioning to the labour market. Specifically, among women with Grade 12 or higher education, only 30% participate in the labour force compared to 83% of men (UN Women, 2023). This disparity underscores the challenges women face in accessing formal employment, leading to a low overall labor force participation rate, significantly below the global average of labor force participation rate.

The age distribution data of Pakistan's male and female employment participation rates in the 2020-21 Labour Force Survey (LFS) show extremely low rates of employment for both sexes in the age range of 10-14 years, with 4% for men and 5% for women (GOP, 2022a). Both genders' employment rates rise sharply from childhood to early adulthood (15-24 years old), with male employment rates peaking at 86% in the 15-19 age group and female employment rates peaking at 29% in the 20-24 age group.

Male employment rates remain high and stable at 98-99%, while female employment rates in the prime working age group (25-49 years) are relatively stable at 28-31%. Female employment rates gradually decrease as one gets older (50-64 years old), going from 26% in the 50-54 age group to 12% in the 60-64 age group. Furthermore, the situation for women in Pakistan's labour market is critical, as more than 70% of employed women are in vulnerable job positions, contrasting with 44% of men. Various factors contribute to this vulnerability, including limited education and information for formal job opportunities, societal restrictions on women working outside the home, cultural norms limiting job options, safety concerns, and inadequate transport services. These challenges hinder women from realising their full potential, agency, financial independence, and meaningful contribution to national development.

Figure 1: Labour Force Participation of Women in Pakistan



Sources: World Bank (n.d.).

Figure 1 shows the situation of female labour force participation rate, which was 24.6% in 2022, placing Pakistan at 142 out of 146 countries in the Global Gender Gap 2023 (World Economic Forum, 2023).

Nature of Traditional Jobs (On-Site Jobs)

Full-time or part-time employment for a business or organisation is referred to as traditional employment or an on-site job. Employees under this kind of arrangement get regular paychecks along with benefits like paid time off and health insurance (Ethan, 2023). The traditional jobs in Pakistan have predominantly been at brick-and-mortar establishments, such as offices, factories, and retail stores (GIZ, 2023).

Nature of Online Jobs

The online job market is a digital marketplace that either commercial or public entities hold. Businesses can publish internal or external job openings on this platform, inviting potential applicants to apply (IvyPanda, 2023). The online jobs have emerged as a promising platform that offers women greater flexibility, independence, and access to a wider range of job opportunities. This category includes remote work, telecommuting, and freelance work facilitated through online platforms (Lowe-MacAuley, 2017).



Online jobs allow women to choose their working hours, work from home, or from any place in the world, for that matter, with clients and with their fellow employees. Technology and digital platforms are crucial for virtual work since they are instrumental in addressing project management, communication, and workflow. The change has the ability to disrupt patriarchal systems and empower women to combat barriers which can potentially prevent them from seeking employment (Amber & Chichaibelu, 2023).

Statement of the Problem

An ever-changing labour market due to the introduction of online employment platforms is the reality of the working environment for women. Given the current trends that show increased availability of jobs, both offline and online, there is a need to assess how women's job satisfaction is affected by these changes and different settings. This research aims to investigate the complex phenomenon of females' job satisfaction at traditional and online jobs, determine the key factors affecting females' job satisfaction, and examine the substantial variation in the degree of job satisfaction among females working in Pakistan.

Research Problem

When Pakistani women move from on-site job positions to online work, they encounter prospects and challenges that may affect their level of employment satisfaction (Redaelli & Rahman, 2021). However, there is no empirical research that has examined the effect of these labour market changes on women's job satisfaction, difficulties encountered, and potential opportunities. This gap must be addressed to give policymakers and relevant stakeholders information on how to help women and increase their participation rate in both traditional and online employment settings, so that they feel more satisfied with their jobs.

Research Objectives

The objectives of the current research are as follows:

1. Evaluate the impact of the transition from traditional labour market roles to online jobs on the job satisfaction of women in Pakistan.
2. To explore the challenges and opportunities specific to females transitioning to online jobs, and analyse their influence on overall job satisfaction.



3. To provide actionable insights and recommendations for organisations and policymakers to enhance job satisfaction in traditional and online jobs.

Research Questions

1. What are the effects on certain aspects of job satisfaction, like compensation, work-life balance, opportunities for career advancement, job security, workplace culture, and motivation for a transition for Pakistani women who switch from traditional labour market roles to online jobs?
2. What are the specific challenges and opportunities faced by females in Pakistan during the transition to online jobs, and how do these factors contribute to or hinder overall job satisfaction?

Significance of the study

The current study has significance for gender equity, policymaking, organisational strategies, educational institutions, comparative insights, and future research. It focuses on women's job satisfaction in different employment settings, providing insights into factors influencing it, and guiding policy development. The findings can also inform organisations and employers to create more inclusive work environments, better prepare women for employment in both traditional and online markets, and shed light on the economic impact of job satisfaction on Pakistan's economic growth. As an indicative study, it underscores the significance of transitioning from traditional on-site to online jobs and its impact on job satisfaction among women in Pakistan, contributing to discussions and paving the way for future research and policy interventions.



2. LITERATURE REVIEW

In recent years, the participation of women in the labour force has seen significant growth in Pakistan. Women now have opportunities in both the traditional job market, comprising conventional workplaces, and the online market, offering remote work and digital entrepreneurship.

Job Satisfaction Definition

The phrase "job satisfaction" refers to ideas, sentiments, and attitudes that people have towards the jobs they are now working on (Falkenburg & Schyns, 2007). It is a comprehensive indicator of how individuals feel about their work and all of its aspects (Aziri, 2011). In addition to this, it is a positive sensation and emotion that employees have about their work and the fundamentals of a job, such as rewards, working conditions, and atmosphere, as well as communication with coworkers (Gunlu et al., 2010). In simple terms, job satisfaction refers to the extent to which an individual's needs are met. It is a notion used in the workplace that has a considerable impact on a number of behavioural factors that are connected to an individual's performance.

Factors Contributing to Job Satisfaction among Women in the Traditional Job Market and Online Market in Pakistan

Job satisfaction among women in the traditional job market and online market in Pakistan is influenced by various factors. Studies conducted in these domains have identified critical determinants of job satisfaction for women.

Salary Benefits

In the regular employment environment, other factors that contribute to women's job satisfaction include compensation and benefits. Access to proper wages and salaries, bonuses and remunerations accompanied by a good employee benefits package has the potential of enhancing job satisfaction among women. The perception of fairness in remuneration is another critical aspect that has the ability to enhance the level of job satisfaction among female employees, according to Mabaso & Dlamini (2017).



Job Security

On the issue of satisfying jobs, the aspect of job security emerges as the most essential. The fact that women can freely pursue employment knowing that they have a guarantee of their continued stay in the jobs gives them confidence in their careers. Security enhances the satisfaction of women in their careers by providing relief from anxiety, as noted by Gragnano et al. (2020). However, career mobility opportunities are one of the most influential factors that affect women's satisfaction with their jobs. The affirmation of equivalent and inclusive channels to career development and promotion is a crucial element of workforce satisfaction for any woman in the conventional employment market. Here, a chance to progress up the career ladder and fulfil personal and professional dreams enhances their overall life satisfaction (Asrar & Rizwan, 2016).

Work-place Environment and Job Autonomy

Another important characteristic concerning the position of women at the workplace is a constructive and tolerant attitude in the work environment. An organisation that embraces diversity, campaigns for gender equity and champions for more acceptance can provide women with the empowering environment they require while at the workplace. In this respect, WLC has created an environment that embraces diversity to enhance their staff satisfaction since they feel wanted and appreciated (ILO, 2020). Lastly, the level of autonomy at the workplace comes out as a relevant factor in relation to the overall job satisfaction among women in a traditional working environment. It not only improves ownership over decisions and controls at the workplace but also makes women more powerful in their working sphere. This means that due to this empowerment, they receive increased job satisfaction because they feel more committed to their line of duty (Hunjra et al., 2010).

Work Flexibility

A number of areas have been pointed out as crucial in affecting women's job satisfaction in the online job market. One of them is the flexibility of the work. The element of being able to regulate work schedule and having the ability to choose projects delivers a level of self-organisation that greatly makes workers in the online market satisfied. Such flexibility enables women to work in a way they would prefer, which translates to higher job satisfaction (Hunjra et al., 2010).



Motivation to Transition

Moreover, the nature of the projects to be accomplished is another crucial factor that helps boost women's job satisfaction within an online market. Incorporation of variation in the excitement and challenge associated with the work experiences enhances this aspect. This variety not only enhances the interest and challenge of their roles but also leads to even higher levels of job satisfaction as they adopt new and different tasks (Asrar & Rizwan, 2016). The ability to earn a competitive income, as evaluated by individual performance and the success of certain projects, has also contributed significantly towards job satisfaction among women professionals in the online market. This earning potential acts as a driving force since there is a positive relationship between working effort and income levels, which can result in increased satisfaction among female employees in this market (Khan et al., 2021).

Work-life Balance

Among different factors, work-life balance has been identified as one of the key predictors of job satisfaction, especially for working women who are indeed considered key caregivers. The research focuses on how working women in Yogyakarta, Indonesia, manage their work-life balance as well as their level of job satisfaction. The research shows a positive relationship between job satisfaction and work-life balance, with the latter making a substantial 12.3% effective contribution to overall job satisfaction. Factors influencing women's work experiences encompass economic and social factors, family welfare, and prestige. The study reveals three notable positive correlations with job satisfaction in the context of work-life balance: interference in personal life, interference in work, and the enhancement of personal life through work. It becomes evident that the more balanced the alignment between work and personal life, the higher the reported levels of job satisfaction (Yadav & Dabhade, 2014).

The above literature shows that various factors play a crucial role in determining job satisfaction among women in both the traditional job market and the emerging online market in Pakistan. Work-life balance, compensation, career advancement opportunities, job autonomy, and workplace culture are important in traditional job settings, while work flexibility, project variety, earning potential, and client satisfaction are significant factors in the online market. Addressing these factors can enhance job satisfaction and overall well-being for women in the workforce.



Measurements of Job Satisfaction for Women in the Traditional Job Market

Job satisfaction among women in their thirties and forties is a crucial aspect of their successful adjustment to the workforce. Several labour market issues, including conflicting home responsibilities, skills obsolescence, readjustment challenges, and gender discrimination, may hinder their successful accommodation (Arditti & Marks, 1979). A study examining job satisfaction during the 1967-72 period revealed a decline in satisfaction levels among women in their thirties and forties, particularly a significant decrease in the proportion of highly satisfied women. Black women particularly reported lower levels of satisfaction by 8-12 percentage points compared to white women and had lower probabilities of being highly satisfied. The research also identified that tenure with the employer and formal vocational training were modestly and positively related to cross-sectional job satisfaction, but conflict between domestic and work responsibilities led to reduced job satisfaction (Andrisani, 1978).

Achieving work-life balance is vital for job satisfaction, especially for women juggling multiple responsibilities at home and work. In Pakistan, changing family dynamics, evolving perceptions, and modern technology have led more women to engage in various professions (Arif et al., 2017). Factors such as job perception, family dynamics, and technology can impact job satisfaction, potentially resulting in physical and psychological issues, absenteeism, reduced productivity, and poor performance.

Female faculty members in business schools are facing increasing workloads, making work-life balance a critical issue. The research suggests that women tend to be more satisfied with organisations that support work-life balancing initiatives. It emphasises that reducing work-family conflict can enhance job satisfaction. Furthermore, the study highlights that various factors, including colleague support, partner support, job resources, and the availability of facilities like flexible working hours, part-time work, on-site childcare, and social support, can influence work-life balance and, consequently, job satisfaction (Murtaza & Khan, 2017).

Comparing job satisfaction among employees in the banking sector of Islamabad, particularly in public and private banks, revealed variations in factors affecting job satisfaction. While both sectors considered job security as a crucial theme, other factors such as incentives, salary, self-respect, future goals, opportunities, organisational culture, customer care, workload, supervisors, environment, and dressing differed between public and private



banks. The research indicated that job security was the most prominent factor, with respondents prioritising it over higher pay. Recommendations included introducing higher salaries and incentives for private bank employees, addressing nepotism and favouritism in promotion policies, and minimising behaviour and attitude disparities between the two sectors (Rasool, 2020).

In conclusion, these studies collectively highlight the multifaceted nature of job satisfaction among women across various sectors and roles. Factors such as work-family balance, job security, exploitation, and workplace conditions significantly influence women's job satisfaction. Addressing these factors can contribute to higher levels of job satisfaction, ultimately benefiting both employees and organisations.

Measurements of Job Satisfaction for Women in the Online Job Market

It is vital to realise that job satisfaction is a complex emotional state that serves as one of the primary predictors of various aspects of employees' experience, such as stress, performance, and turnover. However, the measurement of job satisfaction is not homogeneous in the literature and depends on the type of scale used, of which the familiar scales include the Job Diagnostic Survey and the Job Descriptive Index (JDI). This systematic literature review synthesises literature published during the past five years, using SNA as the theoretical framework for examining workplace well-being and employee behaviour, especially examining tweets containing pay and supervision satisfaction information derived from X (formerly Twitter). The research uses supervised machine learning classifiers with theory-grounded annotation and utilises data with perceived job satisfaction insights alongside U. S states, binary sexes, and major racial categories (Saha et al., 2021). The study underlines the complexity of the idea of job satisfaction, stating that it is more constructive to evaluate facet-level job satisfaction as opposed to total satisfaction.

The study shows that several aspects of job satisfaction have various antecedents, and on the other hand, several effects. Research has observed that due to these factors, such as geographical location, gender, and language, there are bound to be differences in the level of job satisfaction. However, the research under discussion proved the existence of the job satisfaction paradox, which means minorities might express positive opinions in surveys even though they experience difficulties. The study further shows that gender disparities in perceived job satisfaction still exist, indicating that more



research and intervention efforts are needed to address this issue (Saha et al., 2021). When discussing the effects of digitalisation, the aspect of job satisfaction is one of the crucial topics to consider in the context of modern society. This study systematically explores the ramifications of digitalisation on job satisfaction through four key channels: time crunch, concern over employment termination, the flexibility of working hours, and the ease of a smooth workflow between business and personal domains. Individual experience of digitalisation brings the term technostress, which harms work-life balance and job satisfaction. However, the study also uncovers positive dimensions associated with new activities facilitated by digitalisation. These include the interestingness of tasks, reduced repetitive tasks, enhanced productivity, and increased autonomy.

Digitalisation contributes to making work more engaging and offers the potential for improved wages and job satisfaction. Autonomy, coupled with working time flexibility, enhances worker motivation and control, positively impacting job satisfaction. Additionally, the research highlights the role of social networking sites in fostering organisational commitment and job satisfaction. Overall, the study underscores the significant influence of digitalisation on job satisfaction, with the most substantial effects being observed in terms of increased productivity, simplified interactions, and heightened task engagement. However, it is crucial to acknowledge the adverse consequences, such as exacerbated work-life balance issues and heightened time pressures (Bolli & Pusterla, 2022).

To elaborate on the extent of the relationship between digitalisation and job satisfaction, the study proceeds to perform a decomposition analysis by factors of demographic characteristics. It examines the impact of digitalisation on job satisfaction by dividing the sample by gender, age, management, and course of study. This approach is useful in enabling an understanding of the varying impacts of digital transformation on the different segments of the workforce. The study is informative and offers a complex understanding of the effects that digitalisation has on job satisfaction. Further studies should, however, expand the analysis of more job characteristics and provoke people to evaluate how digitalisation impacts their job satisfaction (Chowdhury et al., 2022).

In this systematic literature review, it was established that job satisfaction is a multifaceted construct with antecedents and consequences. Importance is placed on facet-level job satisfaction and the enduring demographic stigma of job satisfaction. Moreover, it emphasises the satisfaction in digitalisation for the workers, and it has positive and negative impacts in the ways mentioned



above. The importance of demographic factors in dealing with such effects is well exemplified here. Lastly, the review also emphasises work-to-family conflict as a factor that impacts the job outcomes, particularly for women and yet again, the complexity of this vital employment feature is also underlined.

Research Gap

There is a dearth of intersectional and comparative analysis in the literature on women's job satisfaction in Pakistan, both for the conventional and virtual labour market. While previous studies have acknowledged the impact of telework, or remote work, on job satisfaction, there is no information available on the consequences. Knowing how such technological changes influence women's job contentment in the long run is important for informing policy. Socioeconomic and cultural aspects of job satisfaction remain other areas that need further study. Therefore, studying the factors influencing women's job satisfaction after exogenous shocks, such as the COVID-19 pandemic, is important.

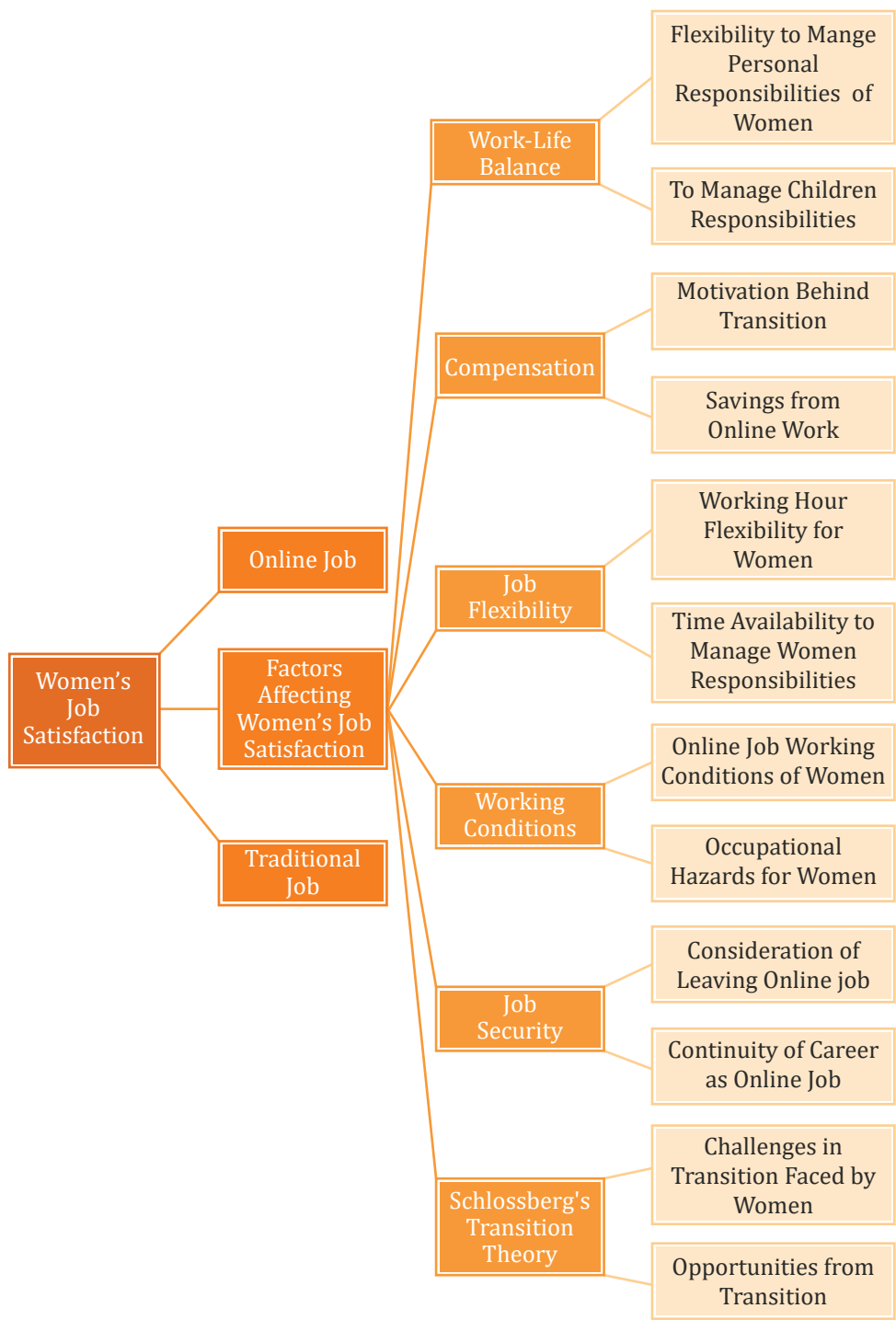
Furthermore, to determine how specific policies and organisational practices affect women's job satisfaction positively or negatively is also critical. Filling these gaps in the literature can make it possible to understand women's job satisfaction in the traditional as well as online job markets in Pakistan. It will assist policymakers and organisations to develop better working conditions for the vulnerable groups of society.

Conceptual Framework

The conceptual framework for understanding women's job satisfaction used in this study includes important factors and aspects that affect women workers' happiness in different work environments.

The framework highlights the complex interaction between these elements and how they affect women's job satisfaction collectively.

Figure 2: Conceptual Framework for Understanding Women's Job Satisfaction



Sources: Authors' illustration.



3. RESEARCH METHODOLOGY

Theoretical Framework

Schlossberg's Transition Theory

This study uses Schlossberg's transition theory (Ravelo, 2023) as a framework for understanding the experiences of Pakistani women transitioning from traditional labour market roles to online jobs. The Schlossberg's transition theory centred on assessing the effects of transition and looking at the situational elements, women's self-awareness, support networks, and coping mechanisms (Freire et al., 2020). It also looks at the opportunities and difficulties that women encounter, like adjusting to new technology, shifting job roles, and navigating virtual workplaces. The theory offers insights into how to overcome these obstacles and seize chances as well.

By analysing coping mechanisms, Schlossberg's transition theory highlights the significance of transitions in understanding an individual's behaviour. Changes in roles, relationships, habits, and assumptions can occur from transitions, and how they are perceived can have an impact on their kind, context, and impact. The ability of an individual to manage change is influenced by the four S's: situation, self, support, and strategies (Schlossberg, 2005). These four Ss are assessed in this study through a questionnaire, which includes questions on the participant's demographics, working environment, flexibility, and stress level arising from the situation. The questions on the environment, the reasons behind the transition, and the savings from the transition are also on the questionnaire. A Virginia Polytechnic Institute and State University study looked at the relationship between plan fullness and job satisfaction for temporary workers. The most strongly correlated factors, according to the study, were coworkers, job happiness, and the calibre of supervision.

Research Design

A structured questionnaire was used to collect quantitative data regarding opportunities, problems, and job satisfaction. Google Forms was used to create the online survey questionnaires. The data were collected on the aspects connected to job satisfaction of the female employees who have switched from traditional professions to online work, and also from those who still have on-site jobs. The survey used the existing job satisfaction scales to inform multiple-choice, open-ended, and Likert scale questions. The 5-point



Likert scale was taken from Bhatnagar et al. (2011) and adapted for the study. In addition to the survey data, the Labour Force Survey 2021 was also used to support the findings and to check for sample bias. This helped ensure the data's representativeness and validity, providing a broader context for understanding the labour force trends and patterns related to female workers transitioning from traditional to online work.

The description of variables in the table below shows that the questionnaire covered a wide range of topics, including demographic information, problems, motives, and job satisfaction.

Table 2: Description of Variables

Category	Variables description	Type
Demographic Information	Age	Ordinal
	Marital status	Categorical
	Educational level	Categorical
	Field of study	Categorical
	Years of experience in traditional employment	Ordinal
Transition to Online Jobs	Type of traditional job before transitioning, and the current service area in the online job	Categorical
	Motivational factors for transitioning to an online job	Categorical
	Ways of experiencing savings by working online	Categorical
Salary and Benefits	Monthly income from the current online job	Ordinal
	Revenue earned in the traditional job before transitioning	Ordinal
	Comparison of the current online job income with the previous traditional job	Categorical
Work-life Balance	Impact of online jobs on family responsibilities and work-life balance	Categorical
	Influence on work-life balance considering responsibilities towards children	Categorical
	Rating of work-life balance in the current online job compared to the previous traditional job	Ordinal
Distance and Commuting	Impact of online jobs on commuting distance	Categorical
	Perception of security while commuting for an online job	Categorical
	Time and money saved by not commuting	Ordinal



Category	Variables description	Type
Work Flexibility and Time Management	Flexibility in working hours in both jobs (traditional and online)	Categorical
	Stress levels and work hours in both jobs (traditional and online)	Ordinal
	Time management and work-life balance in an online job	Ordinal
Working Conditions	Overall rating of working conditions in online jobs	Ordinal
	Importance of positive working relationships with clients	Ordinal
Job Security	Consideration of transitioning to an online job as a government employee	Categorical
	Concerns related to job security in the traditional job	Categorical
	Contemplation of leaving the traditional job before transitioning	Categorical
Qualitative Insights	Specific experiences contributing to job satisfaction in the online work environment	Qualitative
	Challenges or negative aspects of the online job affecting satisfaction	Qualitative
Future Considerations	Future career plans in the online job market or a traditional setting	Categorical
	Recommendation for other women, regarding transitioning to the online job market	Categorical
Job Satisfaction	Overall satisfaction with the transition to online work	Ordinal

Source: Authors' computations.

Sampling Approach

Snowball sampling was utilised in this study to identify participants who have transitioned from traditional to online employment. Snowball sampling involves initially identifying a small group of participants who meet the criteria and then asking them to refer others who also fit the study's requirements. This process helped in reaching those respondents who were well-suited to provide relevant insights into the transition experience. The study leveraged participants' voluntary willingness to participate, with each referred participant contributing to the expansion of the sample pool. This approach was particularly effective in accessing a network of females who have made the switch to online employment, who might have been otherwise difficult to locate.



The sample consisted of 95 females who had online jobs and 45 females who had traditional or on-site jobs.⁵

Snowball sampling enabled the collection of data that captured diverse experiences and perspectives of females who have successfully made the shift from traditional employment to online jobs. Thus, the study benefited from a targeted yet diverse dataset that enhanced the depth and breadth of the research findings.

The entire procedure took care of ethical concerns to guarantee the participants' confidentiality, anonymity, informed consent, and the preservation of validity and reliability.

Data Analysis

The analytical toolkit comprised descriptive statistics, correlation analysis, content analysis, and comparative analysis.

Using Descriptive Statistics: Effective data organisation and summarisation depend heavily on descriptive statistics. Without making unjustified generalisations, these statistics, which include measures of central tendency, dispersion, and distribution shape, offer a concise summary of the important elements included in the dataset (Bhandari, 2020).

Correlation Analysis: Correlation analysis, a statistical tool applied to estimate correlations and quantify the strength of associations between variables, is crucial to comprehending detailed patterns within the dataset (James, 2021).

Content Analysis: Content analysis was employed as a key methodological approach to analyse qualitative data, allowing for the systematic examination of themes, patterns, and narratives across various sources, including interviews and open-ended survey responses. The process involved categorising textual data into relevant themes related to job satisfaction, work opportunities, and barriers faced by women in on-site and online work environments. This method enabled the identification of underlying trends and provided a rich, contextual understanding of women's employment experiences in both work environments.

⁵ Out of the required 95 samples, 45 have been collected so far. Additionally, 50 samples were gathered previously as part of the researcher's MPhil thesis, as this study is an extended version of that work.



4. RESULTS AND ANALYSIS

The results provide valuable context for the complex experiences of these women and contribute new and helpful knowledge to the ongoing discussion on the dynamics of contemporary work.

Demographics of the Respondents

The study analysed demographic data from a sample of 45 females from on-site jobs and a sample of 95 females from online jobs. Table 3 shows the age and marital status of the respondents. The table also shows the corresponding data from the PSLM to check the validity of the data collected for this study. The age distribution data reveal that the majority of respondents in the PSLM survey fall within the 18–25 age range (44.12%), followed by those aged 26–32 (30.35%). According to this study's survey data, on-site jobs, however, are more common among individuals aged 26–32 (48.89%), with fewer younger individuals aged 18–25 (24.44%). Online jobs are dominated by the 26–32 age group (45.26%), but a noteworthy proportion of younger individuals aged 18–25 (20.00%) are also engaged in online work, highlighting a growing preference for digital opportunities among youth. This trend suggests that online jobs align well with younger demographics, offering greater flexibility and accessibility.

The PSLM data shows that 63.71% of individuals are married, while 36.29% are never married. The study's survey data show that on-site jobs are predominantly held by unmarried individuals (62.22%), indicating that younger, single individuals are more likely to engage in conventional employment. A similar pattern is observed for online jobs, where 63.16% of participants are unmarried, further reflecting the appeal of remote and flexible work for single individuals. Notably, the gap is slightly wider for online employment, emphasising its accessibility for younger, unmarried individuals.

Table 3: Descriptive Statistics – Age and Marital Status

Age Range	PSLM (Freq.)	PSLM (%)	On-Site Jobs (Freq.)	On-Site Jobs (%)	Online Jobs (Freq.)	Online Jobs (%)
18–25	3,248	44.12%	11	24.44%	19	20.00%
26–32	2,235	30.35%	22	48.89%	43	45.26%
33–40	1,325	18.00%	5	11.11%	20	21.05%
41+	556	7.53%	7	15.56%	13	13.68%
Total	7,364	100%	45	100%	95	100%
Marital Status						
Married	694	63.71%	17	37.78%	35	36.84%
Never Married	395	36.29%	28	62.22%	60	63.16%
Total	1,089	100%	45	100%	95	100%

Source: Authors’ calculations based on the study’s primary survey data and GOP (2022b).

Table 4 gives the education level and the field of study. The data highlights significant disparities in education levels across PSLM and job preferences. The majority of the PSLM population has 12 years (37.14%) or 16 years (60.61%) of education, reflecting a focus on intermediate and graduate-level education. However, on-site and online job distributions show a clear preference for higher education levels, with MPhil degree holders dominating on-site (62.22%) and online jobs (63.16%), followed by individuals with 16 years of education at 26.67% and 27.37%, respectively. PhD holders, while a small percentage of the PSLM population (0.08%), have almost equal representation in both on-site (6.67%) and online jobs (6.32%), underscoring their demand in specialised roles. The minimal participation of individuals with 10 years and 12 years of education in jobs (<3%) reflects that these education levels are often not suitable for professional roles, especially in the online domain, which requires advanced skills. This distribution underscores the importance of higher education in accessing professional opportunities and highlights a need to expand educational access to bridge gaps in job readiness. There were no illiterate women in the sample, which shows a barrier to entry in the online job market for illiterate women.

As for the fields of study, social sciences dominate both on-site (48.78%) and online jobs (46.31%), reflecting adaptability across work modes, while arts and humanities also show notable representation. Computer science graduates are favoured for online jobs (8.42%) due to the subject’s nature, whereas health sciences majors lean towards on-site roles (15.56%), given the requirement for their physical presence on the job. Fields like business



administration and natural sciences exhibit moderate representation in both formats, while Engineering and Marketing show limited engagement, with marketing majors favouring online roles (3.16%).

In PSLM Data, intermediate-level qualifications dominate (37.14%), likely because this level represents the minimum requirement for many entry-level positions and limited access to higher education. This is followed by MA/MSc degree holders (25.26%), reflecting a focus on higher education, though advanced degrees like MPhil and PhD remain rare. These findings highlight the growing adaptability of online jobs across various disciplines and the role of educational levels and field-specific demands in shaping job preferences.

Table 4: Descriptive Analyses of Education and Area of Study

Education Level	PSLM (Freq.)	PSLM (%)	On-site Jobs (Freq.)	On-site Jobs (%)	Online Jobs (Freq.)	Online Jobs (%)			
10 Years	–	–	1	2.22%	–	–			
12 Years	2,735	37.14 %	1	2.22%	1	1.05%			
16 Years	4,464	60.61 %	12	26.67%	26	27.37%			
MPhil	159	2.16%	28	62.22%	60	63.16%			
PhD	6	0.08%	3	6.67%	6	6.32%			
Total	7,364	100%	45	100%	95	100%			
Field of Study		On-site Jobs (Freq.)		On-site Jobs (%)		Online Jobs (Freq.)		Online Jobs (%)	
Social Sciences		22		48.78%		44		46.31%	
Arts and Humanities		7		15.55%		13		13.68%	
Health Sciences		7		15.56%		6		6.32%	
Business Administration		5		11.11%		10		10.53%	
Computer Science		1		2.22%		8		8.42%	
Natural Sciences		2		4.44%		7		7.37%	
Engineering		1		2.22%		2		2.11%	
Marketing		–		–		3		3.16%	
Mathematics		–		–		1		1.05%	
Total		45		100%		95		100%	
PSLM Field of Study				Frequency		Percent			
Intermediate				2,735		37.14%			
Engineering				24		0.33%			
Medicine				113		1.53%			
Computer Sciences				46		0.62%			
Agriculture				6		0.08%			

PSLM Field of Study	Frequency	Percent	
Other Subjects	2,415	32.79%	
MA/MSc	1,860	25.26%	
MPhil	159	2.16%	
PhD	6	0.08%	
Total	7,364	100%	

Source: Authors' calculations based on the study's primary survey data and GOP (2022b).

Employment dynamics reveal a shift toward online jobs, favoured by younger individuals (18–32) due to flexibility and technological alignment, while on-site jobs cater to slightly older demographics in stable roles. Higher education, especially bachelor's and master's degrees, is crucial for both formats. Social sciences dominate, but online jobs are increasingly attracting graduates from technical fields. These trends highlight the growing flexibility and diversity of online work compared to the stability of on-site roles.

On-Site and Online Job Comparison

Income and Working Hours

The income data, in Table 5, highlights significant differences across job types. Online jobs have the highest mean income (PKR 69,863.16) but also the greatest variability (higher standard deviation), reflecting diverse earning opportunities in the digital economy. On-site jobs have a lower mean income (PKR 50,577.78), but the variation is low (lower standard deviation), likely due to standardised pay scales in roles such as teaching and government jobs. The PSLM data shows the lowest mean income is PKR 32,942.74, which represents a large segment in lower-paying or informal sectors. These figures underscore the financial advantages of education and access to formal, especially online, employment.

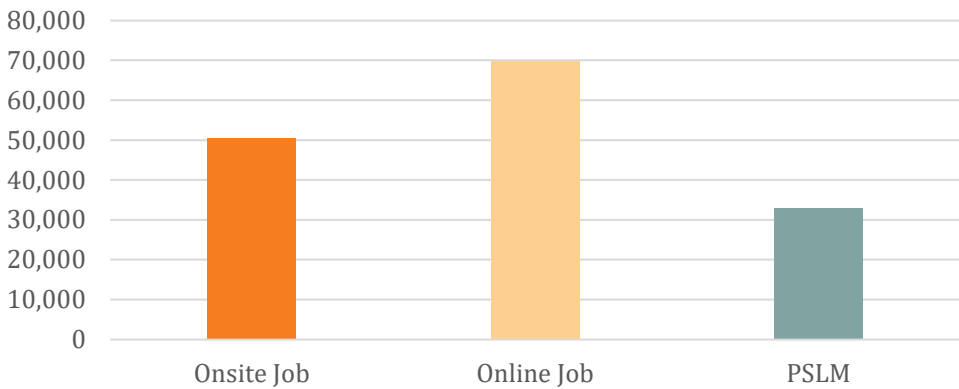
Table 5: Descriptive Analysis Comparison – Online and On-Site Jobs

Income	Mean	Standard Deviation
On-site jobs	50,577.78	24,233.23
Online jobs	69,863.16	60,507.36
PSLM	32,942.74	35,126.59

Sources: Authors' calculations based on the study's primary survey data and GOP (2022b).



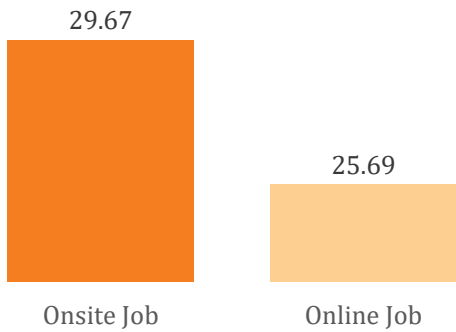
Figure 3: Mean Income



Sources: Authors’ calculations based on the study’s primary survey data.

Figure 4 shows that on-site jobs have a higher average weekly working hours (29.67) compared to online jobs (25.69). This is likely because online jobs offer greater flexibility, enabling workers to balance work and leisure more effectively. The reduced hours in online jobs may also reflect higher productivity per hour, compensating for fewer working hours with potentially higher incomes.

Figure 4: Working Hours Per Week



Sources: Authors’ calculations based on the study’s primary survey data.

Table 5 highlights differences in job types and preferences, emphasising specialisation and labour market segmentation (ILO, 2024). Teaching and education-related roles (60%) dominate on-site jobs, reflecting the need for structured environments. Online jobs show diversity, with content writing and online teaching (28.42% each) leading, showcasing the rise of the gig

economy and remote work flexibility, which leverages digital skills. In teaching, primary and secondary school teachers dominate (58.52%), indicating demand in foundational education. This distribution illustrates how economic incentives and technological advancements shape labour allocation across traditional and emerging sectors.

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Table 5: Nature of Job

Job Type	Frequency	Percentage (%)
On-site jobs		
Banking or finance sector	4	8.89%
Consultancy	1	2.22%
Corporate office	3	6.67%
Government or public sector	5	11.11%
Healthcare profession	2	4.44%
Hospitality or service industry	1	2.22%
Laboratory technologist	1	2.22%
Retail or sales position	1	2.22%
Teaching or education-related	27	60.00%
Total	45	100%
Online Jobs		
Content writing	27	28.42%
Teaching or online education	27	28.42%
E-commerce or online retail	16	16.84%
Marketing and digital advertising	14	14.73%
IT and technology	12	12.63%
Consultancy or professional	5	5.26%
Freelance design/creative services	18	18.95%
Total	95	100%
Teaching Profession PSLM		
Primary school teachers	637	35.47%
Secondary education teachers	414	23.05%
Special needs teachers	2	0.11%



Job Type	Frequency	Percentage (%)
Teaching Profession PSLM		
Other arts teachers	1	0.06%
Teaching professionals not elsewhere	81	4.51%
University and higher education teachers	40	2.23%
Vocational education teachers	17	0.95%
Total (Teaching Professions)	1,192	66.38%

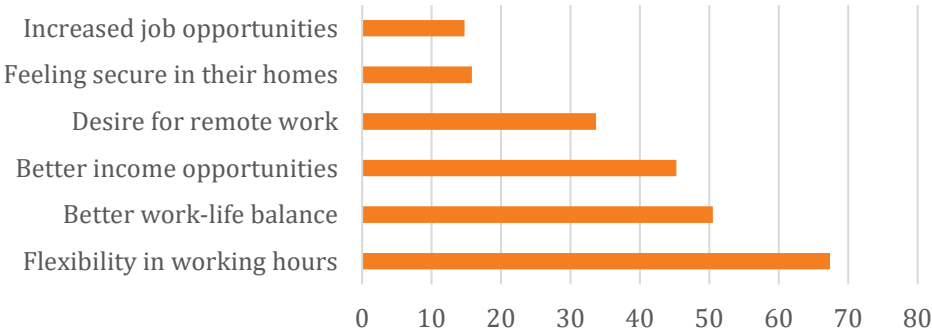
Sources: Authors' calculations based on the study's primary survey data.

Motivational Factors

Figure 5 highlights a clear difference between the key motivators for on-site and online jobs, reflecting a shift in worker preferences driven by economic concepts like job security versus flexibility. According to respondents, on-site jobs are preferred for better financial compensation (46.7%), fixed working hours (42.2%), and teamwork (42.2%). On-site jobs are preferred by people who need predictable income and regular working hours, the importance of which overcomes the disadvantages, such as a rather rigid working schedule. Online jobs, on the other hand, offer independence and flexibility in timing (67.37 %), offering a balance between work and personal lives (50.52 %), and increased financial gain (45.26 %). These findings suggest an increasing trend of the desire for independence and control over working hours. However, flexibility means unpredictable earnings and irregular income, which means an income-flexibility trade-off.

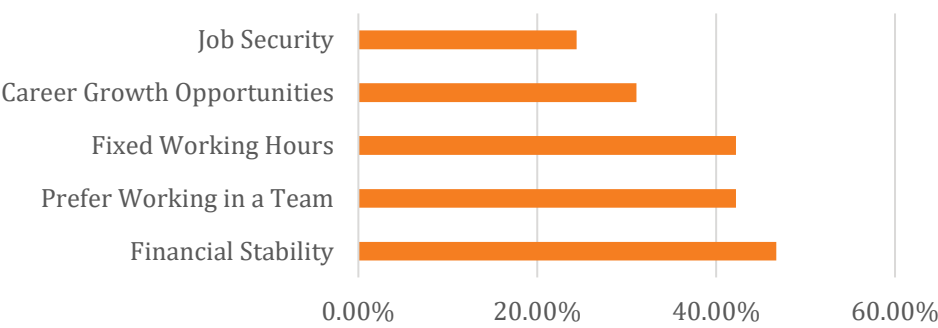
These results imply that for most people, flexibility trumps careers. This trade-off shows the decision-making process whereby workers lose their desire for income stability and choose to strike a work-life balance rather than being consumed by their jobs. Employers, especially those offering on-site jobs, need to look into staff engagement strategies to incorporate some degree of flexibility to suit the demands of the workforce. Ultimately, these trends reflect a broader societal shift towards more adaptable, lifestyle-oriented career paths, with online jobs representing the growing demand for jobs that align with personal well-being and economic preferences in a flexible, digital economy.

Figure 5: Motivational Factors for Online Jobs



Source: Authors’ calculations based on the study’s primary survey data.

Figure 6: Motivational Factors for On-Site Jobs



Source: Authors’ calculations based on the study’s primary survey data.

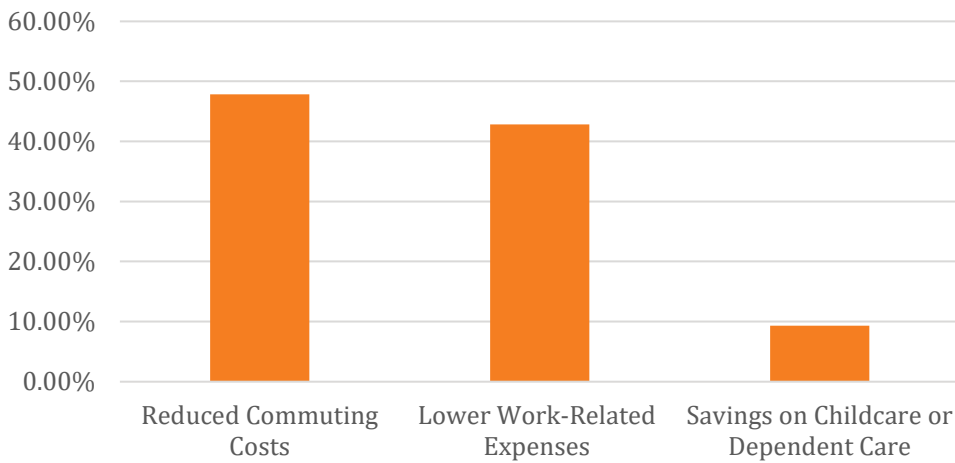
Non-Salary Benefits

The comparison between the non-salary benefits of online and on-site jobs in Figure 7 reveals a clear contrast in workers’ preferences and economic implications. Online jobs provide significant savings, particularly in reduced commuting costs (47.85%) and lower work-related expenses (42.85%), reflecting the economic concept of cost reduction in a flexible work environment. However, online jobs have less focus on long-term benefits, with only 9.29% citing savings on childcare or dependent care. In contrast, on-site jobs offer a more traditional benefits package, with health insurance, bonuses (19.99%), and a pension plan (13.33%) being prominent. 66.67% of the surveyed individuals received no additional benefits from on-site employment, highlighting the fixed compensation structure commonly



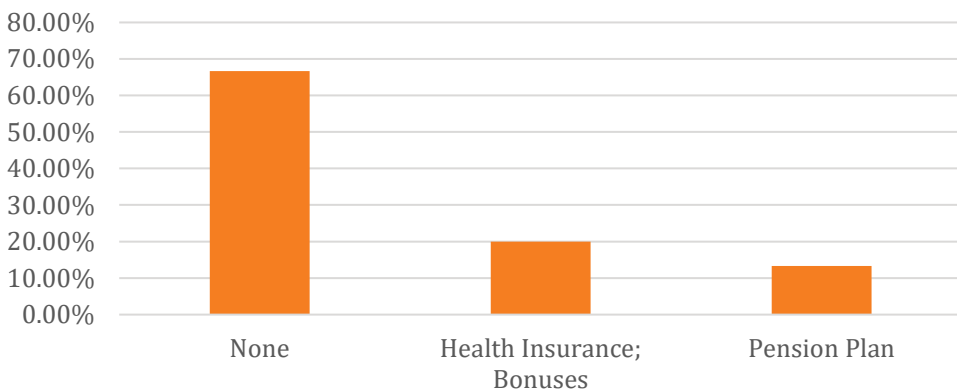
associated with on-site roles, where compensation is typically salary-based with few immediate financial advantages. These differences illustrate a trade-off between immediate, short-term financial benefits, such as savings on commuting, and long-term security benefits like pensions and insurance. On-site jobs, with their stability and long-term benefits, provide greater economic protection in the long run, while online jobs, with their cost-reduction advantages, cater to immediate financial relief and flexibility in work-related expenses, appealing to those seeking greater autonomy in their work-life balance.

Figure 7: Non-Salary Benefits in Online Jobs



Sources: Authors' calculations based on the study's primary survey data.

Figure 8: Non-Salary Benefits in On-Site Jobs

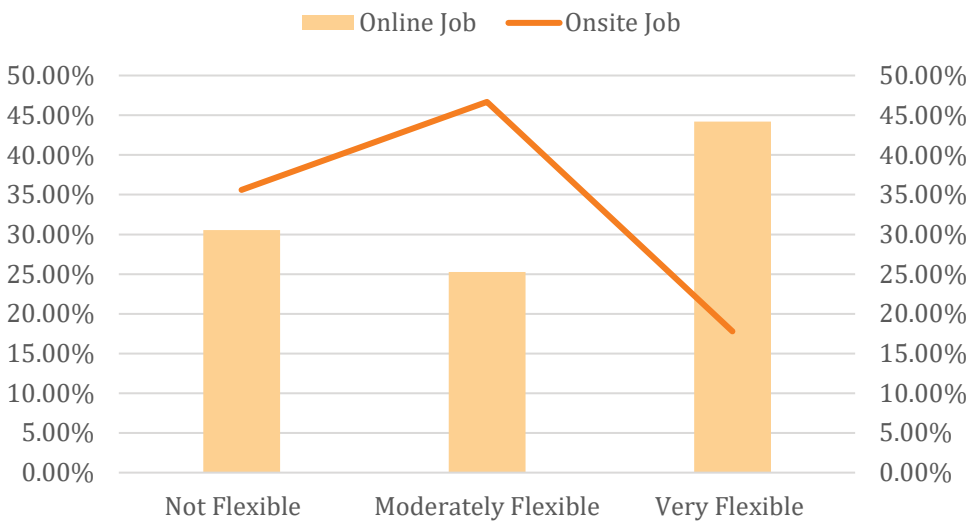


Sources: Authors' calculations based on the study's primary survey data.

Work Flexibility

The data clearly highlights (see Figure 9) the stark contrast in flexibility between on-site and online jobs. While on-site jobs tend to offer rigid working hours, with 35.6% of workers finding their hours inflexible and 46.7% perceiving them as neutral, online jobs, especially freelancing, provide significantly greater flexibility. A majority of freelancers (44.21%) reported having very flexible working hours, with only 30.53% finding their schedules somewhat rigid. This demonstrates that online jobs offer greater autonomy, allowing workers to tailor their schedules to their personal needs, whereas on-site roles are often structured and less accommodating, making online work more appealing for those prioritising flexibility.

Figure 9: Work Flexibility



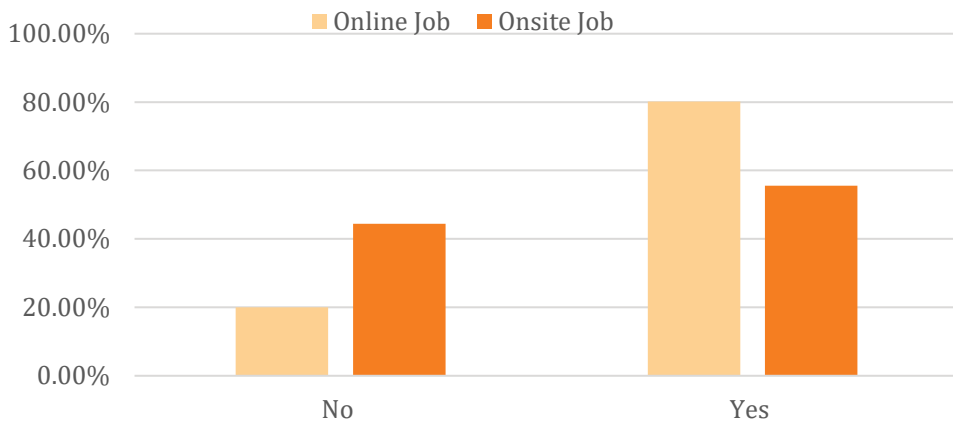
Sources: Authors’ calculations based on the study’s primary survey data

Figure 10 contrasts the economic trade-off between on-site and online jobs, particularly in terms of schedule flexibility and work-life balance. In on-site jobs, 55.56% of employees reported engaging in tasks during traditional hours, while 44.44% did not, which suggests a relatively structured work environment. Conversely, 80.11% of online workers engaged in non-standard hours, such as nights or weekends, compared to only 20% who did not. This trend aligns with rational choice theory, which posits that individuals weigh costs and benefits to maximise utility. Online work offers flexibility and



autonomy, but often at the cost of irregular schedules, potentially disrupting work-life balance. On-site jobs, while less flexible, provide a structured routine that might appeal to individuals who prioritise stability. This trade-off highlights how economic incentives, like flexibility and additional income opportunities from online work, influence individuals' labour market preferences despite potential costs in personal time and well-being.

Figure 10: Working at Night or Weekends

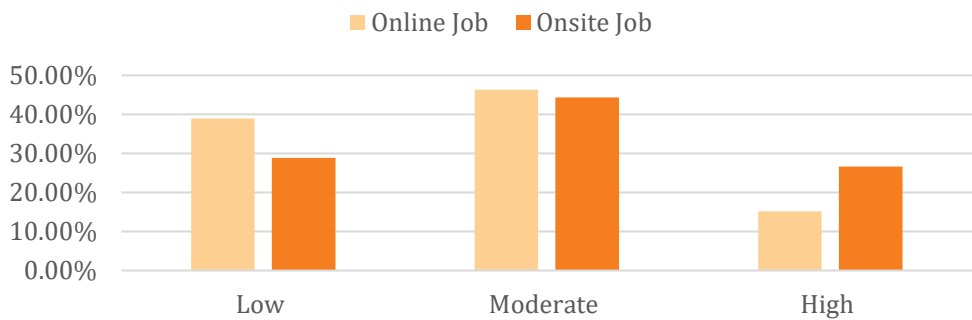


Source: Authors' calculations based on the study's primary survey data.

Stress Level

The data reveal that on-site jobs tend to have higher stress levels compared to online jobs (freelancing). While both groups generally experience moderate stress, on-site workers face significantly higher stress, with 26.7% reporting high or very high stress, compared to just 15.16% of freelancers. Freelancers, on the other hand, benefit from more relaxed work environments, with 38.94% experiencing low or very low stress, significantly higher than the 28.9% of on-site workers reporting similarly low stress. This suggests that freelancing, with its flexibility and autonomy, offers a less stressful alternative to the more structured and demanding nature of on-site roles.

Figure 11: Stress Level

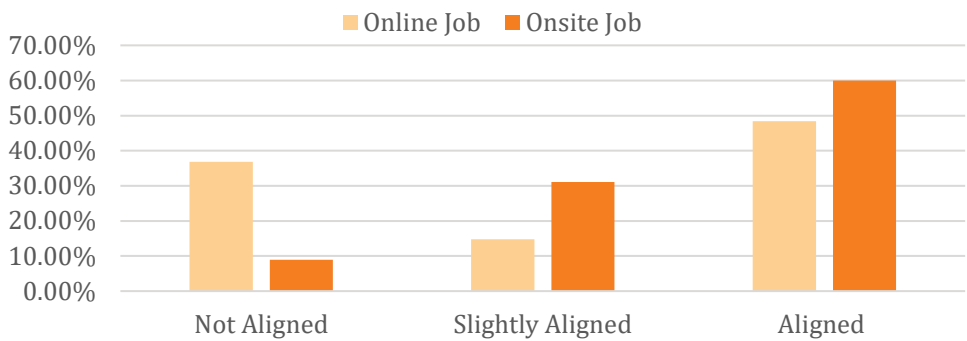


Source: Authors’ calculations based on the study’s primary survey data.

Job Alignment with Qualification

On-site jobs outperform online jobs in aligning with workers’ areas of interest and qualifications, with 60% of workers reporting alignment compared to 48.42% in online jobs. Additionally, online jobs had a significantly higher proportion of individuals experiencing misalignment (36.84%) compared to on-site jobs (8.9%), reflecting the diverse and often less-specialised nature of freelance or remote work. On-site roles also provide more opportunities for moderate alignment (31.1%) compared to online jobs (14.74%), suggesting that on-site jobs offer some compromise between interests and job availability, while online jobs tend to be polarised, i.e., either they are fully aligned or not aligned at all. The stronger alignment in on-site jobs points to their connection with formal qualifications and professional stability, whereas online jobs, despite their flexibility, often require individuals to venture outside their primary expertise, leading to a higher rate of misalignment.

Figure 12: Job Alignment with Qualifications



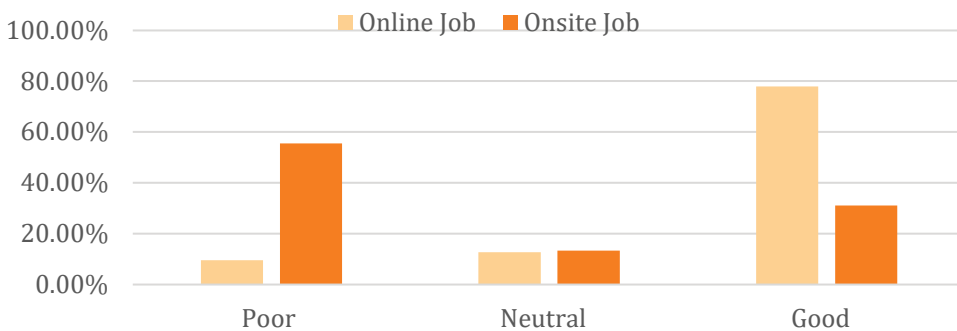
Source: Authors’ calculations based on the study’s primary survey data.



Work Life Balance

The data in Figure 13 highlights a stark contrast in work-life balance between on-site and online jobs, with online roles offering significant advantages. A majority of online workers (77.89%) reported an improved work-life balance, with 44.21% rating it as "Much Better" and 33.68% as "Slightly Better," compared to on-site jobs, where only 31.1% rated the work-life balance as "Good" or "Excellent." Dissatisfaction is prominent in on-site roles, with 55.5% describing their balance as "Fair" or "Poor," while only 9.48% of online workers reported a decline in balance. A small proportion in both categories was neutral, reflecting minimal impact. The flexibility of online jobs emerges as a key driver, enabling better management of personal and professional responsibilities, in contrast to the rigid schedules of on-site roles. These findings underscore the growing preference for online jobs as a more adaptable and worker-friendly employment model.

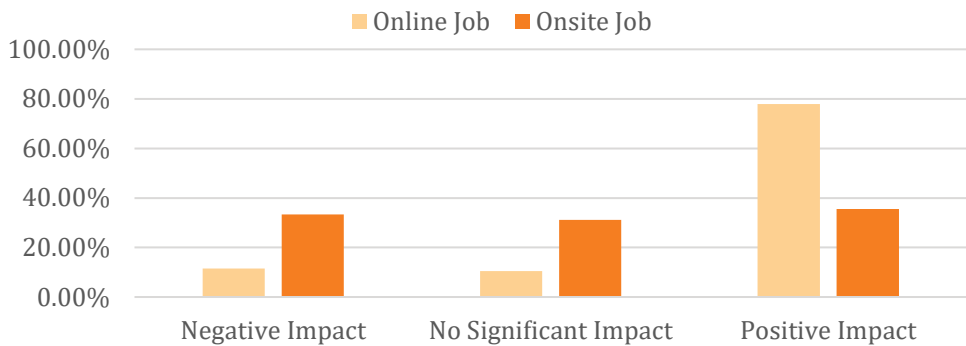
Figure 13: Work-Life Balance



Source: Authors' calculations based on the study's primary survey data.

The results shown in Figure 14 reveal that online jobs have a significantly greater positive impact on managing family responsibilities and achieving work-life balance compared to on-site jobs. A substantial 77.89% of online workers reported positive impact, with 57.89% experiencing a "Positive Impact" and 20.0% a "Very Positive Impact," whereas only 35.6% of on-site workers reported similar views. On-site jobs show higher dissatisfaction, with 33.3% experiencing negative impacts, compared to only 11.58% of online workers. Furthermore, on-site roles have a higher proportion (31.1%) reporting no significant impact, reflecting their limited ability to enhance work-life balance. These trends highlight the advantages of online jobs, where flexibility enables better management of family responsibilities, in contrast to the rigid schedules and demands associated with on-site employment.

Figure 14: Family Responsibilities

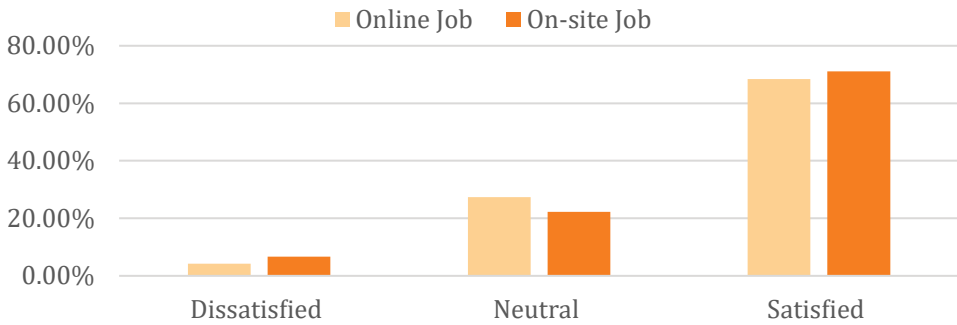


Source: Authors’ calculations based on the study’s primary survey data.

Working Environment

The data reveals overall high satisfaction levels with the working environment across both general responses and on-site jobs, with 68.4% and 71.11% reporting satisfaction, respectively. Neutral responses were slightly higher in the overall data (both on-site and online respondents) (27.4%) compared to on-site jobs (22.22%), while dissatisfaction was low in both cases (4.2% and 6.66%, respectively). If analysed from an economic theory’s perspective, these findings highlight the importance of workplace conditions in enhancing productivity and job satisfaction. A supportive working environment, including positive relationships with colleagues and management, can act as a non-monetary benefit, increasing job utility and reducing turnover. The slightly higher satisfaction rate in on-site jobs may also suggest that face-to-face interaction fosters stronger workplace cohesion, leading to greater employee engagement and alignment with organisational goals.

Figure 15: Working Environment



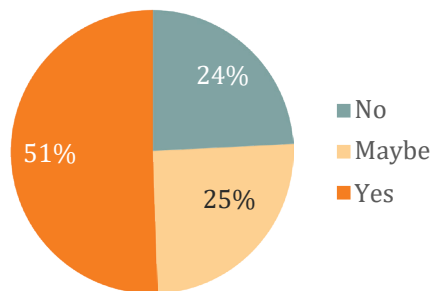
Source: Authors’ calculations based on the study’s primary survey data.



Future Planning

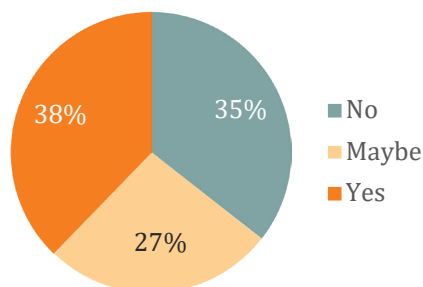
The data reveals a strong interest in transitioning to online jobs among both government employees and on-site job workers, highlighting the growing appeal of flexibility and autonomy. Over half (50.53%) of government employees with job security expressed willingness to transition to online jobs, while 37.8% of on-site job workers foresaw making a similar move in the future. Both groups showed comparable levels of uncertainty, with 25.26% of government employees and 26.7% of on-site workers responding "Maybe," reflecting cautious consideration of the risks and benefits of online work. However, resistance to transitioning is higher among on-site workers (35.6%) compared to government employees (24.21%), likely due to concerns about income stability or adapting to the online job market. These trends demonstrate that even those in secure, on-site roles are increasingly drawn to the flexibility and opportunities of online work, though on-site workers remain slightly more hesitant to make the shift.

Figure 16: Plans for Transitioning to Online Jobs from Permanent Jobs



Source: Authors' calculations based on the study's primary survey data.

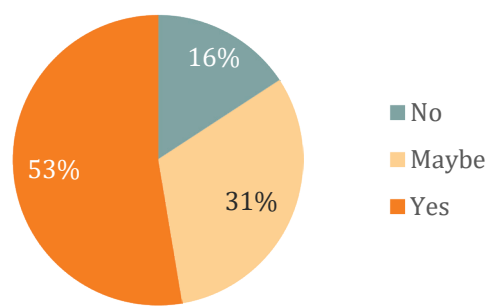
Figure 17: Plans for Transition to Online Job



Source: Authors' calculations based on the study's primary survey data.

The data reveals contrasting trends in career preferences between On-site and online job workers, highlighting shifting priorities. Among on-site job workers, 37.8% express interest in transitioning to online roles, while 35.6% intend to continue in their current employment, valuing its stability and structure. In contrast, 52.63% of online job workers wish to continue in the online market, reflecting high satisfaction with its flexibility and autonomy, while only 15.79% consider returning to On-site jobs. Both groups exhibit similar levels of uncertainty, with 26.7% of on-site workers and 31.58% of online workers responding "Maybe," indicating a cautious approach to future decisions. Overall, the data underscores the growing appeal of online jobs for their adaptability and independence, while on-site jobs retain value for those prioritising security and predictability.

Figure 18: Continuing Online Job as a Career



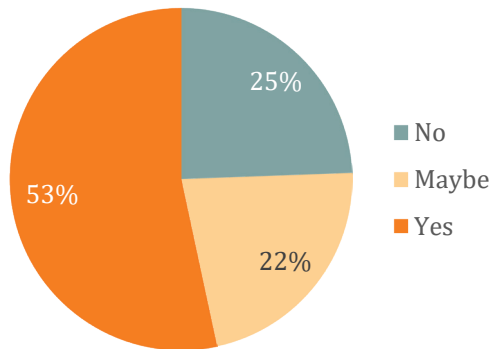
Source: Authors' calculations based on the study's primary survey data.

Recommendation to Others

The data reveals a strong preference for online jobs, with 92.63% recommending them, particularly to women, due to the online jobs' flexibility, inclusivity, and ability to maintain better work-life balance. In contrast, only 53.3% recommended on-site jobs, valuing their stability but duly noting a growing dissatisfaction with on-site jobs' rigid structures and a limited scope for adaptability. While only 7.4% did not recommend online jobs, 24.4% did not endorse on-site jobs, reflecting a shift in preferences toward modern, flexible work environments. 22.2% of the respondents, who expressed uncertainty about on-site jobs ("Maybe"), further emphasised the mixed feelings regarding their suitability in today's evolving workforce. Overall, the data indicates that online jobs are increasingly favoured, especially for empowering women and offering a more adaptable alternative to the On-site employment model.

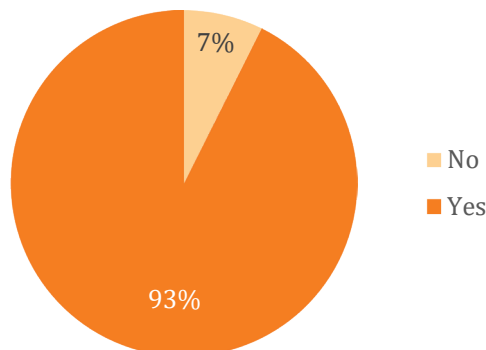


Figure 19: Recommendation of Online Jobs to Others



Source: Authors' calculations based on the study's primary survey data.

Figure 20: Recommendation of On-site Jobs to Others



Source: Authors' calculations based on the study's primary survey data.

Correlation Analysis

Premium in Content Writing over Online Teaching

Income differences between content writing and online teaching can be explained using the concept of "price tag" in economic theory, which reflects the value, scarcity, and specialisation of services. Content writing, especially in specialised niches like search engine optimisation (SEO) and technical writing, commands higher income premiums and greater variability due to the demand for unique, high-skilled services. This aligns with Autor et al.'s (2015) findings on wage inequality, who found that wage inequality is driven

by skill-biased technological change. In contrast, online teaching has a standardised income structure, reflecting a commodified labour market with limited differentiation. Even highly educated professionals face income ceilings due to the replicable nature of teaching services. Overall, content writing reflects the premium for specialisation, while online teaching illustrates the constraints of commodification.

Educational Level vs. Income

When comparing online and on-site jobs for bachelor’s degree holders, we found that there is a 31.2% income premium for online work with average monthly earnings of PKR 70,000 as compared to PKR 53,333 for on-site Jobs. This is in line with the price tag concept, implying that online roles in IT, technology, and content writing have better remuneration due to diverse market preferences, market size, and the opportunity to work with international clients. On-site careers, including teaching and governmental positions, are immobile, have fixed pay scales, and have fewer chances of upward mobility, thus having lower incomes. These gaps can be explained higher valuation of digital and technical skills in the global market, leading to better remuneration.

Studies by Brynjolfsson & McAfee (2014) and Katz & Krueger (2016) emphasise how digital transformation enables workers to access international markets, increasing earning potential. The findings suggest that fostering digital skills and improving remote work infrastructure could bridge income gaps and boost economic productivity by aligning workers with global market demands.

Table 6: 16 Years of Education and Income – Online vs. On-Site Jobs

Educational Level: Bachelor's (16 Years)			
Category	Online Jobs	On-site Jobs	Premium of Online Jobs
Mean Monthly Income	PKR 70,000	PKR 53,333	31.2%
Leading Sector	Teaching/online education (26.92%), IT & technology (26.92%)	Teaching/education (33.33%)	-
Second Leading Sector	Content writing (15.39%)	Government/public sector (25%)	-

Source: Authors’ calculations based on the study’s primary survey data.



Fixed Working Hours vs. Financial Stability

Fixed working hours and financial stability are important factors that influence on-site job seekers, and each factor has different socioeconomic characteristics. Workers who prefer predictability at a job, fixed working hours, stability, and work-life balance seek on-site jobs, such as in the teaching and healthcare sectors. Of the respondents working with fixed hours, 87.5% were unmarried, and 75% possessed a master's degree. Despite relatively low wages, which ranged, on average, between PKR 45,000 and PKR 70,000, these jobs offer stability. This behaviour is predicted by the labour-leisure trade-off theory, as well as Herzberg's two-factor theory, which terms job stability as a hygiene, but a vital factor.

On-site jobs are also preferred by those who want financial security and a steady income. There is parity between the married and unmarried persons (50% each) who preferred financial security and a steady income. This group mostly belonged to banking & finance and teaching sectors, as they seek job security and upward mobility. 66.67% of the respondents working in these sectors had a master's degree. The average salary of the individuals who are financially motivated was PKR 54,166.67, with the coefficient of variation lower than that for the other group because of the fixed pay structure. The inclination toward more secure jobs can be explained by risk theories and income satisfaction studies that show that certain and frequent income is a way to reduce anxiety and have greater job satisfaction (Clark et al., 2008).

Fixed working hours are preferred by those workers who enjoy a structured work schedule, time flexibility, and financial security. Employers can enhance supply-side predispositions to accept their offers through the customisation of job characteristics, such as the flexibility of the job design and extrinsic rewards, for instance, insurance coverage, or performance incentives. It is important as these strategies can improve job satisfaction and match the needs of the workforce with those of the organisation.

Table 7: Fixed Working Hours vs. Financial Stability

Variable	Fixed Working Hours	Financial Stability
Marital status	Married: 12.50% Never married: 87.50%	Married: 50.00% Never married: 50.00%
Income (approximate salary)	Mean: PKR 55,000 Range: PKR 20,000 - 150,000	Mean: PKR 54,166.67 Range: PKR30,000 - 70,000
Education level	Bachelor's degree: 25% Master's degree: 75%	Bachelor's degree: 33.33% Master's degree: 66.67%
Job type	Teaching or education-related jobs: 62.50% Corporate office jobs: 12.50% Healthcare jobs: 12.50%	Banking or finance sector: 33.33% Teaching or education-related Job: 33.33% Corporate office jobs: 16.67% Healthcare jobs: 16.67%

Source: Authors' calculations based on the study's primary survey data.

Fixed Working Hours vs. Flexible Working Hours

Women in the labour force have different concerns influenced by financial opportunities and life experiences. Women may seek flexible working, fixed-hour on-site jobs (common in teaching and health care), stability, regularity, and job security, a stable income, and work-life balance. This can be analysed through the lens of Becker's household production theory, which explains how people use time to gain the greatest household utility. Scheduled work hours allow better child care and other household responsibilities, thereby maximising their utility. On the other hand, flexible working hours in online jobs are suitable for women in the sense that such jobs allow them to work at any time they want so that they can fulfil other household responsibilities, such as child caring or even further their education. Although these roles provide greater earnings, on average (PKR 67,375 in the survey data), these jobs are less consistent and secure than onsite roles typically are. This dynamic ties with Katz & Krueger (2016). They surveyed the gig economy and found that flexible employment roles have greater earnings variability and employment flexibility, but, at the same time, have lower employment and financial stability.

In summary, the choice of having fixed or flexible hours of work depends on the labour-leisure trade-off proposed by Becker (1965). Becker suggested that women consider the utility of working against the time that they can spend on household production or leisure. Employers and policymakers need



to tap into the lessons of labour economics and create stable, flexible arrangements required in a volatile labour market while meeting the demands of women within the same labour market.

Table 8: Fixed Working Hours vs. Flexible Working Hours

Variable	On-Site Jobs (Fixed Working Hours)	Online Jobs (Flexible Working Hours)
Marital Status	Married: 12.50% Never married: 87.50%	Married: 35.94% Never married: 64.06%
Income (approximate salary; PKR)	Mean: 55,000 Range: 20,000 - 150,000	Mean: 67,375 Range: 2,000 - 300,000
Educational level	Bachelor's degree: 25% Master's degree: 75%	Bachelor's degree: 20.31% Master's degree: 71.88% PhD: 7.81%
Job type	Teaching or education-related jobs: 62.50% Corporate jobs: 12.50% Healthcare jobs: 12.50%	Content writing: 14.06% Freelance design or creative services: 9.38% Online teaching: 7.81%

Source: Authors' calculations based on the study's primary survey data.

Marital Status vs. Job Satisfaction

The described economic behaviour of never-married and married women corresponds to several principles of neoclassical economics. For example, never-married women prefer flexibility in the job, autonomy, and financial independence, which reflects the labour-leisure tradeoff in time allocation decisions. For these women, the ability to choose when they want to work is preferable since it enables them to maximise their utility by earning money and, at the same time, ensuring that they remain as independent as possible. This finding is in line with Becker's household production theory to the extent that women, especially those who have never been married, will make decisions that maximise household utility, such as time for self and career.

On the other hand, married women's emphasis on financial stability, job security, and predictable income aligns with the life-cycle consumption model and household utility maximisation. According to these models, married women tend to focus on long-term financial stability, which ensures not only current income security but also future welfare, including retirement planning and family needs. The preference for fixed working hours and on-site jobs, with their associated benefits such as healthcare and pension plans, reflects a risk-averse strategy in managing household finances and long-term

economic stability. This aligns with risk-aversion theories (Musumeci, 2008), where individuals (in this case, married women) are more likely to choose job security over potentially higher but less predictable earnings, particularly when they are responsible for supporting family needs.

Table 9: Marital Status vs. Job Satisfaction

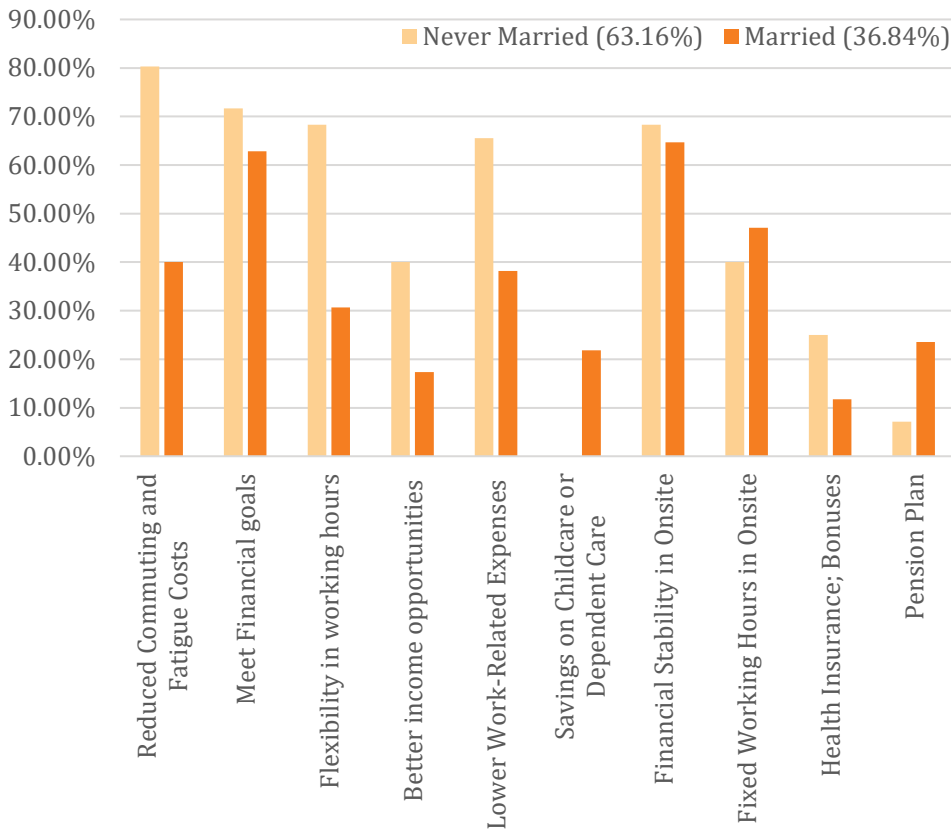
Motivation and Benefits in Online Jobs						
Categories	Reduced Commuting and Fatigue Costs	Meet Financial Goals	Flexibility in Working Hours	Better Income Opportunities	Lower Work-Related Expenses	Savings on Childcare or Dependent Care
Never married (63.16%)	80.33%	71.67%	68.33%	40.00%	65.57%	
Married (36.84%)	40.00%	62.86%	30.67%	17.33%	38.18%	21.82%
Motivation and Benefits in an On-Site Job						
Categories	Financial Stability in On-Site Jobs		Fixed Working Hours in On-site Jobs	Health Insurance; Bonuses		Pension Plan
Never married (63.16%)	68.33%		40.00%	25.00%		7.14%
Married (36.84%)	64.71%		47.06%	11.76 %		23.53%

Source: Authors’ calculations based on the study’s primary survey data.

The findings align with established economic theories and literature on labour market decisions, highlighting the importance of income, flexibility, and stability in shaping job preferences for married and never-married women. For married women, their preference for stability and balancing family responsibilities is supported by household utility maximisation theory, which posits that individuals make decisions that maximise the family’s welfare, especially when managing household obligations (Becker, 1965). Married women’s higher income in online jobs (PKR 69,285.71) compared to on-site jobs (PKR 56,294.12) reflects the flexibility offered by remote work, allowing them to balance income generation with family duties. Their choice for on-site jobs despite lower income aligns with risk-aversion theory (Musumeci, 2008), where they opt for predictable, stable income and routine to ensure long-term financial security for their families.



Figure 21: Marital Status vs. Job Satisfaction



Sources: Authors' calculations based on the study's primary survey data.

For never-married women, the preference for online jobs, which provide a higher income (PKR 70,200) compared to on-site jobs (PKR 47,107.14), reflects the labour-leisure tradeoff theory. This theory suggests that individuals allocate their time between labour (work) and leisure based on preferences and constraints, and in the case of never-married women, the ability to work flexible hours and earn higher wages aligns with their desire for income maximisation and personal autonomy. Their ability to optimise their schedules, as shown by the high percentage of women working at night or on weekends (80%), demonstrates how online jobs allow for more control over time, enabling them to align their work hours with personal goals. Additionally, the lower earnings in PSLM roles compared to both on-site and online jobs underscore the importance of flexibility and higher earning potential in the labour market. This aligns with income maximisation theories, where women, particularly those without family responsibilities,

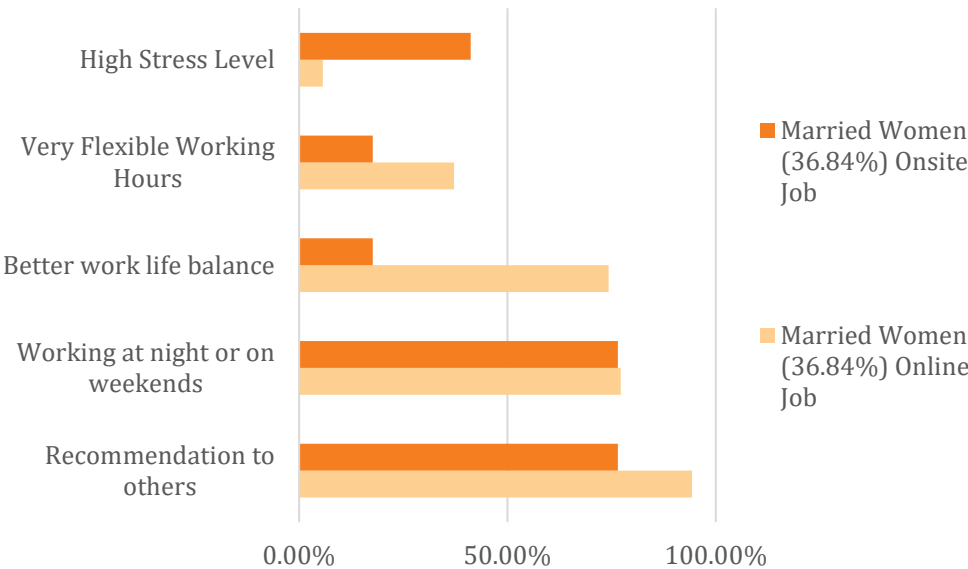
seek higher income opportunities in jobs offering greater flexibility and control over their work schedules. Overall, online jobs offer both higher income and greater flexibility, making them the most economically advantageous choice for both married and never-married women, albeit with different motivations tied to their family roles and autonomy.

Table 10: Marital Status vs. Job Satisfaction

Variable	Catego-ries	Average Income (PKR)	Very Flexible Working Hours	High Stress Level	Working at Night Or On Weekends	Recom-mend to Others	Better Work-Life Balance
Married women (36.84%)	Online job	69,285.71	37.14%	5.71%	77.14%	94.29%	74.28%
	On-site Job	56,294.12	17.65%	41.18%	76.47%	76.47%	17.65%
Never married women (63.16%)	Online job	70,200.00	46.67%	40.00%	80.00%	93.33%	80.00%
	On-site Job	47,107.14	17.86%	17.86 %	42.85%	50.00%	39.29%

Sources: Authors’ calculations based on the study’s primary survey data.

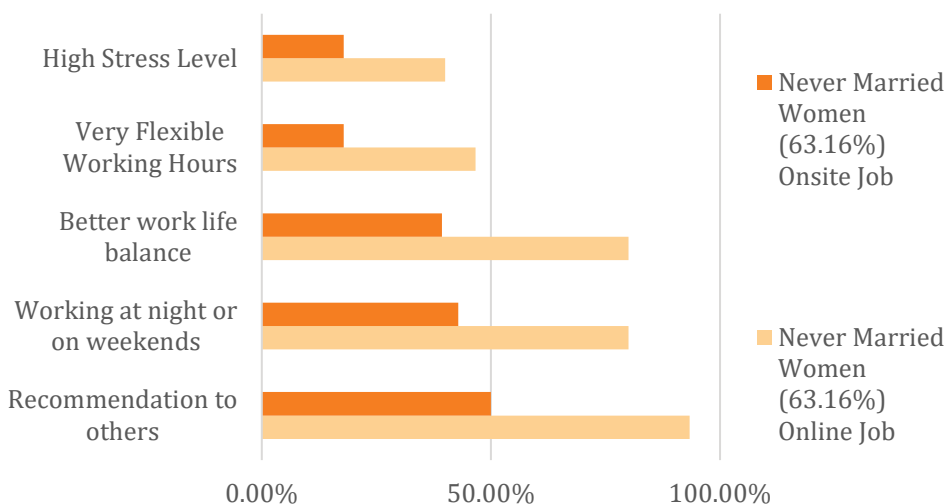
Figure 22: Online vs. On-Site Jobs – Married Women



Source: Authors’ calculations based on the study’s primary survey data.



Figure 23: Online vs. On-Site Jobs – Never Married Women



Source: Authors' calculations based on the study's primary survey data.

Table 11: Marital Status vs. Job Satisfaction

Categories	Married - Average Income (PKR)	Never Married - Average Income (PKR)
On-Site Job	56,294.12	47,107.14
Online Job	69,285.71	70,200.00
PSLM	36,011.34	25,375.67

Source: Authors' calculations based on the study's primary survey data.

Figure 24: Marital Status vs. Income



Source: Authors' calculations based on the study's primary survey data.

Online vs. On-site Jobs by Age Group

The analysis of online and on-site jobs across different age groups aligns with several key findings from the existing literature on labour market segmentation, work flexibility, and job satisfaction. The predominance of master's degree holders in both online and on-site jobs is consistent with human capital theory, which suggests that individuals invest in education to improve their skills and increase their earning potential. Younger workers, with a higher proportion of bachelor's degrees in online jobs, align with the growing demand for digital skills in the modern labour market (Katz & Krueger, 2016). The presence of PhDs in online jobs among older workers reflects the flexible nature of online work, which often allows for the utilisation of specialised knowledge and experience (Brynjolfsson & McAfee, 2014).

The tendency for married individuals to dominate on-site jobs, while online jobs attract a more diverse range of marital statuses, is consistent with findings in the literature regarding the trade-off between work flexibility and family responsibilities (Greenhaus & Allen, 2011). Online jobs, offering greater flexibility, are particularly appealing to workers with varied personal and family obligations. The shift towards creative and specialised fields, such as online teaching and content writing among younger workers, and freelance design among older workers, reflects the growing diversification of online work. This aligns with the literature on the gig economy and the rise of flexible, non-traditional work arrangements (de Stefano, 2015). The income patterns also align with expectations from labour market segmentation theory, where younger workers in online jobs benefit from higher wages in creative industries, while older workers may gravitate toward more traditional on-site roles offering greater financial stability (Dickens & Lang, 1993).

The emphasis on flexibility and work-life balance among younger workers in online jobs is consistent with literature highlighting the growing demand for non-traditional work arrangements, particularly among younger generations who prioritise autonomy and personal time (Weideman & Hofmeyr, 2020). The greater flexibility of online jobs is balanced by the tradeoff of night/weekend work, which is also noted in studies on the gig economy, where workers often face irregular working hours in exchange for more control over their schedules (Lehdonvirta, 2018). The higher satisfaction with work-life balance and family impact for younger workers in online jobs supports findings from research on telework and remote work, which show that flexible work arrangements improve work-life balance and reduce stress

(Morganson et al., 2010). While on-site jobs may offer stability, they tend to come with more rigid schedules and higher stress, which aligns with literature that associates on-site jobs with greater work-related stress and less flexibility (Agata et al., 2023).

The analysis suggests that online jobs provide significant advantages in terms of flexibility, work-life balance, and income for younger workers, supporting findings from studies on the positive aspects of digital and remote work (Chatterjee et al., 2021). However, the challenges posed by night/weekend work and income instability are well-documented in the literature on remote work (Bloom et al., 2020). For older workers, on-site jobs offer stability and financial security, which aligns with the work of Samorodov (1999) on human capital and labour market choices, where older workers prioritise income stability and job security.

Table 12: Online vs. On-site Jobs by Age Group

Online Job Age Group	Education Level		Marital Status (%)		Type of Online Work (%)		Mean Income (Rs)
Under 30 years	Bachelor's	31.25%	Married	20.31%	Online teaching	29.68%	69,843.75
	Master's	67.19%	Never Married	79.69%	Content writing	26.55%	
Above 30 years	Bachelor's	19.35%	Married	70.97%	Content writing	21.74%	58,806.45
	Master's	61.29%	Never Married	29.03%	Freelance design/creative services	17.39%	
	PhD	19.35 %			Online teaching	15.21%	
Online Job Age Group	Most Frequent Motivation for Transition (%)				Savings by working online (%)		
Under 30 years	Flexibility in working hours			22.86%	Reduced commuting and fatigue costs		57.82%
	Better work-life balance			22.86%	Lower work-related expenses		20.31%
Above 30 years	Flexibility in working hours			30.15%	Lower work-related expenses		41.30%
	Better work-life balance			25.40%	Reduced commuting and fatigue costs		39.12%
					Savings on childcare		19.56%

Source: Authors' calculations based on the study's primary survey data.

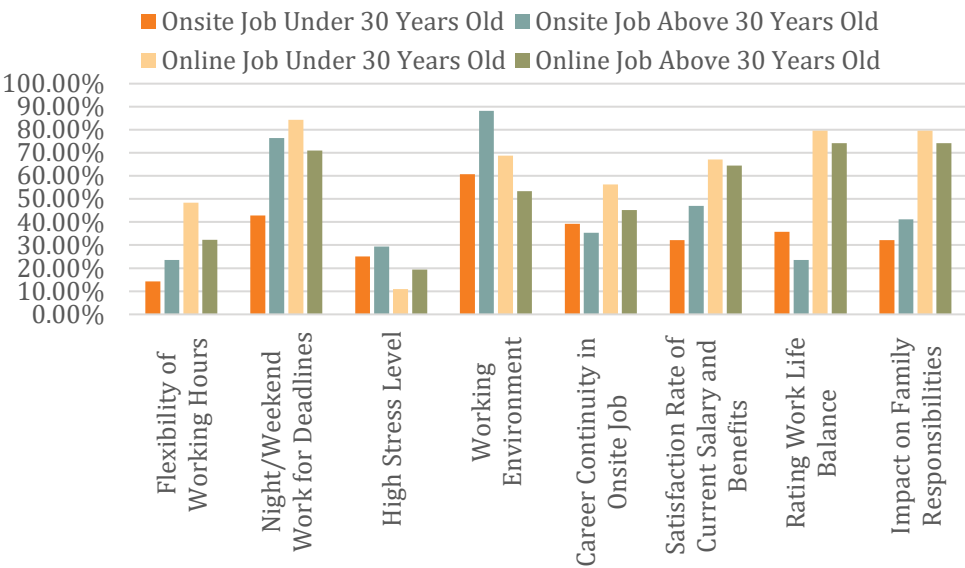


Table 13: Online vs. On-site Jobs by Age Group

On-site Job Age Group	Education Level		Marital Status (%)		Type of Traditional Job (%)		Mean Income (Rs)
					Teaching	57.14%	
Under 30 years	Bachelor's	32.14 %	Married	10.71%	Banking/ corporate job	21.42%	46,285.71
	Master's	64.29%	Never Married	89.29%	Government job	10.71%	
Above 30 years	Bachelor's	17.65%	Married	82.35 %	Teaching	64.7%	57,647.06
	Master's	58.82%	Never Married	17.65 %	Banking/cor porate job	17.64%	
	PhD	17.65%	Government Job		11.76%		
On-site Job Age Group	Most Frequent Motivation (%)				Non-Salary Benefits (%)		
Under 30 years	Fixed working Hours			50.00%	None		71.43%
	Prefer working in a team environment				Health insurance; bonuses	21.43%	
					Pension plan	7.14%	
Above 30 years	Financial Stability			52.94%	None		58.82%
	Prefer working in a team environment				Pension plan	23.53%	
					Health insurance; bonuses	17.64%	

Source: Authors' calculations based on the study's primary survey data.

Figure 25: Online vs. On-site Jobs by Age Group

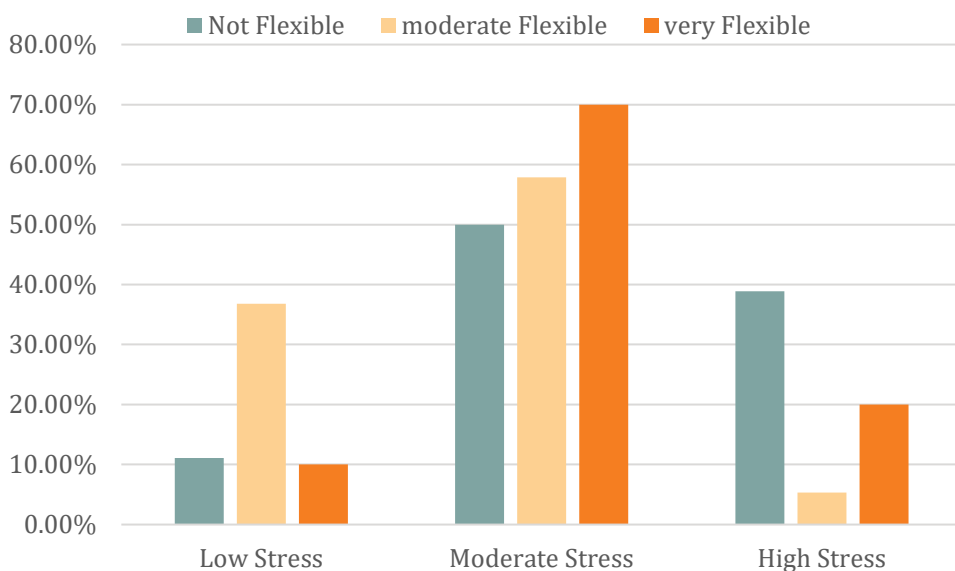


Source: Authors' calculations based on the study's primary survey data.

Work Flexibility and Stress Level:

The analysis of the relationship between working hour flexibility and stress levels reveals a clear correlation: greater flexibility is associated with reduced stress. Those with inflexible work hours report the highest levels of stress, with 50% experiencing moderate stress and 38.9% reporting high stress, while 33.3% face very high stress. In contrast, respondents with moderately flexible hours show improved stress outcomes, with only 5.3% reporting very high stress and 57.9% experiencing moderate stress. The balance of stress levels is more favourable, though some stress remains. Individuals with very flexible hours experience the lowest stress overall, with 70% reporting moderate stress and only 20% reporting high stress. Additionally, 10% report very low stress, and 10% face very high stress, indicating a more balanced stress distribution. This trend underscores that increased flexibility in work hours effectively reduces stress, leading to better job satisfaction and a healthier work-life balance.

Figure 26: Work Flexibility and Stress Level



Source: Authors' calculations based on the study's primary survey data.



Content Analysis

On-site Jobs Advantages:

- **Financial benefits:** Financial stability, consistent income.
- **Work-Life balance:** Balance between professional and personal life.
- **Personal development:** Opportunities for skill-building, teamwork, and professionalism.
- **Structure and discipline:** Structured routines and disciplined work environments promote productivity.
- **Social interaction:** Opportunities for social interaction, though less frequently mentioned.
- **Work environment:** Positive, relaxing work environment.
- **Career growth:** Opportunities for networking and career advancement.
- **Stability and security:** Strong sense of job stability and security.

On-site Jobs Challenges:

- **Time management:** Long working hours and inflexible timings.
- **Inadequate pay:** Salary dissatisfaction and insufficient compensation.
- **Workload:** High workload affecting personal time.
- **Work-life balance:** Difficulty balancing professional and personal responsibilities.
- **Job insecurity:** Concerns regarding job stability and growth opportunities.
- **Health concerns:** Prolonged screen time, emotional burnout, and stress.
- **Commuting:** Difficulties in commuting.
- **Biased workplace behaviour:** Presence of biased practices in the workplace.
- **Micromanagement:** Challenges with micromanagement.
- **Misaligned government policies:** Issues related to government policies affecting work conditions.



Online Jobs Advantages:

- **Flexibility in working hours:** Ability to manage work at one's convenience.
- **Work-Life balance:** Easier balancing of personal responsibilities, especially for mothers and caregivers.
- **No commuting:** Elimination of commuting.
- **Positive work environment:** Stress-free and comfortable environment, working from home.
- **Team collaboration:** Effective team collaboration and interactions with international clients.
- **Professional growth:** Opportunities for personal and professional development.
- **Reduced workload:** Lower workload in some cases.
- **Timely Payments:** Reliable payments, contributing to financial stability.

Online Jobs Challenges:

- **Unstable income:** Income uncertainty and irregular pay.
- **Internet disruptions:** Technical issues, especially with internet connectivity.
- **Tight deadlines:** Pressure from tight deadlines leads to stress.
- **Long and irregular working hours:** Challenges of working outside regular hours due to time zone differences.
- **Multiple revisions:** Clients request multiple revisions, creating workload stress.
- **Limited growth opportunities:** Lack of professional growth and support in some cases.
- **Isolation:** Feelings of isolation compared to office-based environments.
- **Unreasonable clients:** Issues with fake or unreasonable clients.
- **Micromanagement:** Instances of micromanagement in online settings.
- **Health concerns:** Health issues arising from prolonged work hours.

On-site jobs offer stability, structured environments, and career growth, while online jobs provide flexibility, convenience, and autonomy. Both face challenges: on-site roles struggle with time management and pay, while online jobs deal with income uncertainty and internet issues. Addressing these challenges—by adding flexibility to on-site roles and stability to online work—can improve job satisfaction in both types.

5. CONCLUSION AND POLICY RECOMMENDATIONS

Conclusion

Employment is shifting online, which gives women more freedom and independence to work. Online working opportunities provide various job options, like working from home, working from a distance, and freelancing jobs. Remote work is gradually gaining acceptance, especially after the COVID-19 crisis, as many freelancers also reported positive experiences with work-from-home policies. The shift from on-site jobs to online jobs will especially benefit those women who previously could not find initial employment, or could not get promoted when they had jobs, due to cultural stereotypes, lack of education, or discrimination.

This paper examines Pakistani women's transition from on-site to online labour through the lens of Schlossberg's transition theory. The survey findings show that women's preferences for online versus on-site jobs are shaped by a nuanced interplay of economic, social, and motivational factors. Younger, unmarried women demonstrate a strong inclination toward online work because of its flexibility and alignment with lifestyle aspirations, whereas older and married women prioritise on-site roles for their stability and financial security. Income disparities between online roles—such as content writing and online teaching—underscore the premium associated with specialised, high-demand skills, aligning with economic theories like human capital theory and labour-leisure trade-off models. Moreover, educational attainment emerges as a significant determinant of income, with bachelor's degree holders earning a notable premium in online roles, reflecting the global demand for digital and technical expertise.

The preference for fixed working hours of on-site workers resonates with the need for routine and stability, particularly among women managing familial responsibilities, whereas flexible hours in online jobs empower women to balance caregiving and professional growth, catering to those pursuing



autonomy and higher earning potential. Marital status further influences job satisfaction, with married women favouring the financial stability of on-site roles and unmarried women gravitating toward the autonomy and earning potential of online jobs. These findings align with theoretical frameworks of Schlossberg's transition theory, Herzberg's motivation-hygiene theory, risk-aversion principle, and Becker's household production theory.

Policy implications of this study suggest the need to bridge gaps in worker satisfaction by introducing structured yet adaptable schedules and enhancing non-salary benefits like health insurance in on-site roles. Similarly, online jobs require measures to ensure income stability through performance-based incentives and expanded skill development programs. Overall, the insights underscore the importance of fostering digital literacy and infrastructure to align local labour markets with global employment trends, offering equitable opportunities and empowering women to make informed career choices in an increasingly digitalised economy.

Policy Recommendations

Based on the study findings, several targeted policy recommendations are proposed to address the challenges and needs of women in online and on-site work environments. Firstly, enhancing digital skill development is essential. Targeted training programmes should be started, particularly for women with lower educational attainment, to improve digital literacy and employability in online jobs. Collaborations with private sector stakeholders, educational institutions, and NGOs can provide accessible, affordable, and practical skill-building courses. Additionally, developing online training platforms with localised language support and tailored content can help reduce digital literacy gaps, particularly in rural areas. Partnerships with NGOs and government agencies to provide free or subsidised internet access and devices for training purposes would further support this initiative.

Promoting flexible work policies and hybrid job models is another recommendation. Encouraging businesses to adopt hybrid work models that offer flexibility while ensuring income stability can enhance women's participation in online employment. Workplace policies supporting work-life balance, particularly for married women who also have to fulfil family responsibilities, should be prioritised. Flexible hours, remote work options, and phased work arrangements are essential to making online work more accessible. The proposed Freelancer Social Protection Fund (FSPF) can enhance stability by providing health insurance, pension plans, and financial

security to online workers, ensuring their economic well-being. Ensuring social security and benefits for online workers is also vital. Establishing an FSPF to provide health insurance, pension plans, and income stability through voluntary contributions and government co-funding can significantly enhance the financial security of online workers. Additionally, introducing Digital Labour Welfare Cards to provide access to financial benefits, tax incentives, and microloans for online workers would be a progressive step.

Facilitating legal recognition of freelancers and fostering partnerships with digital platforms, along with integrating fintech services, can further improve worker protections and economic stability. Facilitating market access and financial inclusion for women requires enhancing online employment platforms and promoting Pakistani digital freelancers in international markets. IT service providers and digital firms should support female digital entrepreneurs through mentorship, resources, and funding opportunities. Expanding microloan offerings, tax incentives, and training programs can help women online workers manage fluctuating earnings and enhance their financial resilience. Addressing cultural barriers and promoting digital opportunities is critical to fostering an inclusive digital economy. Awareness campaigns featuring successful female digital entrepreneurs as role models can help shift cultural perceptions about women's participation in online work. Community engagement programs targeting families and local leaders can address societal concerns, while gender sensitivity training in digital literacy programs can challenge stereotypes and promote inclusivity.

Policy discourses and workshops involving stakeholders are essential to addressing cultural barriers and emphasising the economic benefits of women's online employment. Infrastructure development is another priority. Providing reliable internet access, affordable technology, and secure online platforms is necessary to support women's participation in the digital economy. Collaborations between government agencies, private sector firms, and NGOs can help bridge infrastructure gaps, particularly in rural and underserved areas. Monitoring, data collection, and policy implementation are essential for ensuring the effectiveness of these recommendations. Establishing monitoring systems to deter exploitation within digital employment sectors and protect workers' rights is critical. Periodic labour market assessments and Time Use Surveys can guide region-specific strategies and address time poverty. Collaboration between the National Economic Transformation Unit (NETU), government bodies, private sector stakeholders, NGOs, and educational institutions is necessary to ensure effective policy implementation.



These proposed policies contribute to the E-Pakistan, Equity and Empowerment, and Exports pillars of the Uraan Pakistan framework by promoting digital transformation, social justice, and economic growth. Increasing women's participation in digital work and enhancing their skills can boost exports by expanding IT services, e-commerce, and digital entrepreneurship. Their involvement in freelancing, online businesses, and knowledge-based services strengthens Pakistan's IT export sector and promotes cultural exports. Additionally, hybrid work models can enhance productivity and export potential. Implementing these policy recommendations within the Uraan Pakistan framework can create a more inclusive and resilient digital economy. By empowering women through hybrid job models, enhancing digital literacy, promoting equitable income distribution, and ensuring social protection, Pakistan can effectively advance its economic transformation goals.

It is also recommended that Pakistan's existing databases, such as PSLM and other relevant national surveys, be improved and unified to include data specifically related to women's online employment. Such integration would provide a complete understanding of employment trends and improve the formulation of evidence-based policies aimed at promoting women's digital employment in Pakistan.

Limitations and Future Directions

This study has several limitations that should be addressed in future research. The reliance on snowball sampling may introduce bias and limit the generalisability of findings, as a more diverse geographic sample could enhance external validity by accounting for socio-economic differences across Pakistan. Additionally, the cross-sectional design captures job satisfaction at a single point in time, restricting the ability to assess long-term job satisfaction trends. While cultural norms are mentioned, a deeper exploration of their influence on women's transition to online work is needed to provide a more comprehensive understanding. Moreover, although stress levels are briefly discussed, the study does not adequately examine the mental health implications of transitioning to online work, which warrants further investigation.

Future research should address these limitations by examining the role of digital literacy in job transitions, particularly among women with lower educational attainment. Longitudinal studies are essential to assess the long-term impact of online work on women's careers, income stability, and job

satisfaction. Additionally, comparative studies across South Asia could provide valuable cross-cultural insights into how cultural, economic, and policy differences influence women's online employment. Further exploration of mental health implications and the overall well-being of women transitioning to online work is also necessary. Finally, studying regional disparities in online employment access and satisfaction could guide more tailored policy recommendations that promote inclusive and equitable digital employment opportunities.



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THE FUTURE OF WORK IN MOUNTAINS: EXPLORING THE FREELANCING LANDSCAPE IN GILGIT-BALTISTAN

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ABSTRACT

This study investigates the potential of freelancing as a transformative economic opportunity for youth in Gilgit-Baltistan (GB), a region with limited traditional employment opportunities. Focusing on the National Freelance Training Program (NFTP) at Karakoram International University (KIU) as a benchmark, this research study examines the impact of the NFTP to develop a comprehensive understanding of the challenges and opportunities present in GB's freelancing ecosystem. The study combines quantitative survey data with qualitative insights gathered through in-depth interviews and focus group discussions (FGDs) to assess the effectiveness of this program in promoting freelancing in GB. The findings provide policy guidelines for effectively promoting the gig economy and freelancing in the mountainous region of GB. Findings highlight that freelancing is a promising economic avenue for young people, given the limited conventional employment opportunities offered by traditional economic sectors. While the NFTP has significantly produced a critical mass of successful freelancers in GB, other programmes have not been able to demonstrate a visible impact. The survey data reveal that most respondents were satisfied with the NFTP, have learned practical skills, and now work as freelancers. Some of them have created start-ups, thereby extending the impact of the NFTP. The findings from the survey data were then triangulated with experts through interviews and FGDs to better understand the conditions and context that enabled the NFTP programme to deliver significant results. Besides, this discussion helped to understand specific trends in the survey data and their implications for designing future freelance programs that would help promote freelancing in these remote areas. Based

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on the findings, the study proposes actionable policy recommendations that include the establishment of a dedicated freelancing unit at the GB IT Board to oversee the performance of training programmes, the creation of strategically located smart freelancing hubs to provide resources and support, and the integration of freelancing-focused curricula into higher education programmes to replace traditional IT courses. By addressing these critical gaps, GB can leverage the gig economy to generate sustainable employment opportunities and effectively integrate its youth into the global digital workforce.

1. INTRODUCTION

Pakistan faces significant economic challenges, including high unemployment and limited job creation, particularly in remote and underdeveloped regions, such as Gilgit-Baltistan (GB). This mountainous region, bordering China, is characterised by limited arable land, a lack of industrial infrastructure, and economic isolation from major urban centres, which hinders traditional job creation despite its great economic potential in sectors such as tourism and mining. Moreover, GB has a high literacy rate, but employment opportunities beyond the public sector, private banking, and a few NGOs remain scarce, leading to rising unemployment among educated youth. This situation calls for policymakers to explore alternative economic opportunities and career paths that could help mitigate unemployment.

Over the past few years, online freelancing has emerged as a promising employment sector in Pakistan, providing educated youth with the opportunity to engage with global gig economy markets by leveraging their digital skills (Raza, 2023). In the context of GB, freelancing is increasingly viewed as a new economic opportunity for young people who wish to remain in the region rather than migrate for work. However, despite numerous interventions in this sector, GB lacks a structured, evidence-based approach to promoting freelancing as a sustainable livelihood option for educated young people. While some organisations and programmes are working to impart freelancing skills, their effectiveness is uncertain, often misaligned with market demands, and focused on a few typical skills at the expense of other globally in-demand opportunities. Furthermore, government interventions, financial support mechanisms, and donor-funded programs often lack strategic direction and evidence-based interventions, leading to unsatisfactory outcomes.

Despite the growing interest in freelancing as a new form of employment, there has been little formal research assessing the effectiveness of existing freelancing programs or evaluating their impact on promoting freelance work in GB. No comprehensive study has yet examined the regional freelance ecosystem, its operational challenges, or identified context-specific strategies for fostering freelancing as a sustainable economic opportunity in this remote and economically underdeveloped region.

This study adopts a distinct approach to fill this critical research gap. Unlike previous studies, it undertakes a thorough examination of the existing freelance landscape in GB, with a particular focus on assessing the impact of



the National Freelance Training Program, officially recognised as one of the most successful skill development initiatives in the region. By analysing the experiences of National Freelance Training Program (NFTP) graduates and exploring the broader ecosystem in which freelancing operates, this study provides valuable insights into regional dynamics, structural challenges, and emerging opportunities.

Ultimately, the findings of this research aim to guide the development of evidence-based, contextually relevant strategies and policy interventions to strengthen and scale the freelancing ecosystem in GB, aligning local efforts with national priorities and global trends in the digital economy.

This research focuses on the following specific objectives:

1. To examine the potential of freelancing as an emerging employment sector in GB.
2. To assess the current freelancing landscape in GB by evaluating the impact of the NFTP.
3. To propose evidence-based policy recommendations and strategic interventions for strengthening and expanding the freelancing ecosystem in GB.

2. LITERATURE REVIEW

Gig Economy

Advances in the technological landscape have nurtured a dynamic workforce market environment where an array of job opportunities are readily accessible online (Wood et al., 2019). This allows employers to connect directly with workers who are equipped with the right skills. This phenomenon is widely known as the 'gig economy', which is considered to be an umbrella term encompassing different models, for instance, crowdsourcing, providing individual services online, and a variety of other types of micro-tasks, each of which has unique impacts on the corresponding traditional employment markets (Vallas & Schor, 2020). Online platforms are key channels that link employers and workers in the gig economy, and freelancers utilise these platforms to find tasks that align with their skills and interests. While this employment model offers flexibility and autonomy, it

poses significant challenges to traditional employment and job markets (Rani et al., 2021). Nevertheless, the gig economy is signalling a shift in the conventional labour market, which the COVID-19 pandemic accelerated, leading to exponential growth in gig-based employment (Shaw et al., 2023).

The Gig Economy: A Global Perspective

The gig economy has emerged as a transformative force in the global labour market. Yoganandham & Varalakshmi (2024) provided a comprehensive examination of the gig economy in India, discussing its rapid growth fuelled by technological advancements and shifts in societal attitudes toward work. The authors emphasise the role of start-ups in driving the gig economy as new platforms emerge to connect freelancers with clients across various industries. According to their research, these platforms have enabled individuals to access a broader range of opportunities and led to the growth of informal work arrangements characteristic of the gig economy. De Neve et al. (2023) highlighted the importance of infrastructure in supporting the gig economy as the growth of digital infrastructure, including internet connectivity and mobile technologies, facilitates the proliferation of freelancing and gig work.

Vardanyan (2023) further explored the global dimensions of the gig economy, focusing on how it is reshaping the international labour market. This study identifies several key gig economy drivers, including globalisation, digital platforms, and the increasing demand for flexible work arrangements. This study points out that freelancing has become a viable career option for individuals in developed and developing countries, offering greater flexibility, autonomy, and the ability to work remotely. Similarly, Vadavi & Sharmiladevi (2024) examined the evolution and trends of the gig economy, providing a broader understanding of its development using a bibliometric analysis. Their analysis highlights the rapid expansion of gig work across various sectors, including technology, transportation, and creative industries. Other studies emphasise the growing importance of digital platforms in connecting freelancers with clients and the increasing reliance on artificial intelligence and automation to streamline the gig economy. Besides, the gig economy is more pronounced in regions with strong digital infrastructure and entrepreneurial ecosystems (Lo & Kun-Lin, 2024).



Implications for Labour Markets

The gig economy, which involves short-term work arrangements facilitated through digital platforms, has become a significant part of the contemporary labour market. Academics are studying this trend to understand its implications for the future of work. An essential theme in the literature is the economic impact of the gig economy, and many studies to date have examined how it contributes to job creation and economic growth while presenting multiple benefits and challenges (Jeon et al., 2019). For instance, researchers have focused on the labour rights of the gig workers, highlighting the problems they face on the online platforms. The study by Wood et al. (2019) argued that freelancers are vulnerable to unexpected financial crises; therefore, customised policy interventions are needed to offer them social protection. Griep (2022) discussed the gig economy workers' work-life balance and mental well-being. Nevertheless, the gig economy is an emerging trend, yet there are uncertainties surrounding the future of work in the gig economy. Scholars argue that the gig economy has heralded an entirely new era in job markets (Plepys & Singh, 2019), while others assert that this is an extension of established trends in precarious employment (Wilkinson & Barry, 2020).

The rise of the gig economy is closely tied to advancements in digital technologies and the proliferation of online platforms that connect workers with clients worldwide. According to Vardanyan (2023), the gig economy has fundamentally disrupted traditional labour markets, offering flexibility to workers and cost efficiency to businesses. The increasing demand for digital services such as content creation, graphic design, and software development has further accelerated this growth. The global freelancing market, valued at billions of dollars, is expected to expand as more individuals and organisations recognise its potential.

Research highlighting the evolution of the gig economy emphasises its rapid growth and diversification over the past decade. It also underscores the necessity of skill acquisition and continuous learning to adapt to the dynamic demands of this sector (Vadavi & Sharmiladevi, 2024). Regions with proactive governmental policies and robust training programs have successfully leveraged the gig economy's potential. As highlighted by Yoganandham & Varalakshmi (2024), India's gig economy has flourished due to investments in digital infrastructure and policy support, serving as a model for other countries in the region. Moreover, the remote nature of freelancing aligns well with the needs of regions where traditional employment opportunities are scarce, but internet access is emerging as a valuable resource.



Digital platforms are central to the gig economy, serving as intermediaries connecting freelancers with clients. Past research studies have emphasised the role of digital platforms in organising the informal workforce and facilitating the emergence of new types of work. Platforms such as Upwork, Fiverr, and Freelancer have revolutionised freelancing, allowing individuals to access global job markets and clients (Vallas & Schor, 2020). The extant literature underscores the broader implications of digital platforms for the gig economy, particularly for the international labour market. Study highlights how platforms have democratised access to freelance work, enabling individuals in developing countries to offer services to clients across the globe (Williams et al., 2023). However, Vardanyan (2023) also raised concerns about the potential for exploitation within the gig economy, especially for workers in developing countries who may be subject to low wages, poor working conditions, and a lack of legal protections.

Nevertheless, the evolution of digital platforms has made them more sophisticated, thereby facilitating greater specialisation in the gig economy. As platforms evolve, they can offer more tailored services to freelancers and clients, creating new opportunities for niche skills and expertise.

Training and Skill Development for Gig Work

While the traditional labour economics and sociology literature points to an established correlation between higher education and income level (Day & Newburger, 2002), the gig economy seems to challenge this relationship. In the gig economy, employers hire workers without examining their educational certificates, which is unprecedented in the traditional labour market. Furthermore, the rise of micro-credentials, called 'gig credentials,' exacerbates the situation. Micro-credentials are competency-based and industry-specific learning packages primarily focused on freelance workers' skill development (Hunt et al., 2020). Thus, the synergy between gig credentials and the gig economy redefines the traditional concept of 'education for employment.' This will also profoundly influence the existing curriculum and teaching pedagogies in higher education. This situation calls for a critical review of the traditionally known 'education-income relationship,' explicitly focusing on rapidly changing job markets amid the gig economy boom (Kato et al., 2020).

Nevertheless, scholars argue that micro-credentials have the potential to restructure higher education, where the universities and other institutes of higher learning will be compelled to adapt to the workplace demands rather than focusing on the broader learning needs (Tamoliune et al., 2023).



Universities will tend to be more 'responsive' to employer requirements, positioning them in a competitive market alongside various educational providers. However, critics argue that micro-credentials are giving rise to several other problems as they seek to alter the established demand-supply matrix of academic qualifications or credentials to solve the labour market problems. The micro-credentials tend to overemphasise employment purposes of education and seek to divert students from substantial credentials with substantial value to micro-credentials with micro value (Wheelahan & Moodie, 2022).

By comparing and contrasting the perspectives mentioned earlier, it becomes apparent that the gig economy is posing challenges to the existing model of higher education, and it is profoundly affecting the widely accepted education-income relationships. While global forces will continue to make the gig economy relevant, developing countries like Pakistan (with 64% of the youth population) cannot afford to ignore their contribution to the gig economy by supplying a skilled freelance workforce to the global gig markets. Therefore, the higher education sector in Pakistan needs to adopt proactive strategies to be a part of the worldwide competition while maintaining the value of higher degrees.

Gig Economy and Freelancing Trends in Pakistan

The landscape of freelance work in Pakistan is transforming rapidly, positioning the country as an emerging hub in the global freelance industry. Pakistan is the 4th fastest-growing freelance market worldwide, with an annual growth rate of 78%. The IT ministry reports that freelancers contributed over \$500 million to the economy last year. The country has an estimated 3 million freelancers, many under 30 years of age, reflecting a youth-driven movement in this sector (Hanif, 2022). While the IT services remained on top, the export remittances from non-IT services surged to \$131 million in 2022 from \$33 million reported in 2021. Content writing, translation, virtual assistantship, sales, marketing, account, finance, and customer service are the major areas of non-IT freelance services. The Government of Pakistan has recognised this potential and has initiated various programmes to support and further the freelance industry, indicating a positive trend towards embracing and fostering this sector (Raza, 2023). Pakistan has a high youth bulge, as 64% of the population is under 30 years of age. The unemployment rate among young people is about 8.5% due to a lack of opportunity. These unemployed young people can be engaged in freelancing and help build the nation, as this sector can create employment

and uplift the country's and individuals' socio-economic conditions. On the other hand, it has barriers such as poor digital infrastructure, money transfer impediments (unavailability of PayPal), regulatory barriers, and high taxes, which reduce the chances of getting full benefits from this industry (Irfan, 2023).

The reports show that freelancers in Pakistan have maintained their good reputations on renowned freelancing platforms. They have immense potential to enhance their contribution to export remittances further. The experts emphasise upgrading and revisiting Pakistan's freelance ecosystem to train a better freelance workforce (Ahsan et al., 2022). In this context, the government and other concerned private sector institutions need to develop a robust strategy that will help to capitalise on the potential of emerging gig markets.

National Freelance Training Program

Punjab Information Technology Board (PITB) established the NTFP at the Karakoram International University, the first systematic government intervention in 2021. The NTFP aims to promote freelancing in the GB region by imparting in-demand freelancing skills primarily to university students and graduates who want to pursue careers as freelancers. This programme targets educated youth and students through its structured approach, providing them opportunities to tap into the growing freelance job market.

The NTFP trained more than 1,400 youth from GB in six cohorts, each following standardised processes and curriculum. The PITB and KIU teams jointly supervised the training, ensuring a high-quality learning experience. The curriculum was continually updated to remain relevant to the evolving demands of the online platforms, and the selection process was designed to identify committed and capable candidates. An 80% attendance rate was mandatory for graduation, and the programme offered practical exposure to freelancing platforms, ensuring that participants were well-prepared to enter the global freelance market.

Over the three years of its operation (from June 2021 to June 2024), the programme delivered excellent results, enabling hundreds of youths to generate a reasonable income (more than PKR 200 million) through freelancing platforms, such as Upwork and Fiverr. Graduates of the programme established their own companies. They became role models, training and mentoring hundreds of individuals, many of whom now work as freelancers, both part-time and full-time.



PITB recognised the NFTP at KIU as one of the best-performing centres in Pakistan, further emphasising the programme's success and impact. The initiative's positive outcomes imply that this model could be benchmarked for systematically promoting freelancing across regions.

3. RESEARCH METHODOLOGY

This study used a mixed-methods approach, conducting research in two distinct phases. The initial phase employed a quantitative survey to evaluate the impact of the NFTP using data from individuals who had received training under this programme. While there were more than 1,400 trainees, the study sample was explicitly drawn from the 813 participants who completed the programme by fulfilling all graduation requirements and were awarded the certificates. These graduates were selected because their complete data records were available and accessible.

Survey questions were developed in close collaboration with the NFTP team. The survey questions were divided into two main categories. The first category included questions exploring key features of the NFTP and its impact on generating online employment opportunities. The second category contained questions on the perception of these graduates about the viability of promoting freelancing as a formal employment sector in GB. Given previous experience with data collection in the region and anticipating higher response rates, the survey was conducted via mobile phone. The collected data were analysed using descriptive statistics and are presented in tables and graphs.

Phase two involved collecting qualitative data through focus group discussions (FGDs) and in-depth interviews, conducted using a semi-structured interview guide. This phase took place over three weeks, beginning in the last week of January 2025 and concluding in the second week of February. The primary objective was to triangulate the survey results and gain a deeper understanding of the trends observed in the quantitative data, particularly about the freelancing landscape in GB. A total of two FGDs, each comprising 6 to 8 participants, and eight in-depth interviews were carried out using purposive sampling. Participants were selected based on their expertise and active involvement in the NFTP and GB's broader freelancing ecosystem. They included NFTP trainers, top-rated freelancers, founders of freelance companies, heads of skill development programmes or centres, and relevant government officials. These qualitative engagements provided valuable

context-specific insights, helping to uncover nuanced challenges and opportunities within the GB freelance ecosystem. The findings from this phase have been integrated into the study’s discussion to enrich the overall analysis with a more comprehensive and grounded perspective.

4. QUANTITATIVE DATA ANALYSIS

This section presents the quantitative survey results, offering a statistical overview of key variables related to the impact of the NFTP. Descriptive statistics were utilised to summarise and highlight trends, patterns, and distributions within the data. The findings are displayed through tables and figures to facilitate clarity and support visual interpretation. While this section provides a structured summary of the survey outcomes, a more detailed interpretation integrating qualitative insights is presented in the subsequent findings and discussion chapter to offer a deeper and more contextualised understanding of the results.

Response Rates

The table and figure below illustrate student participation in the survey. Out of a total of 813 NFTP graduates, 307 responded, yielding a response rate of 37.8%. Among the remaining graduates, 189 could not be reached due to their phones being switched off, while 26 either rejected the calls or had lines that remained busy. Additionally, 269 graduates did not answer the calls, and 22 were found to have provided incorrect contact numbers or numbers that were already in use by others.

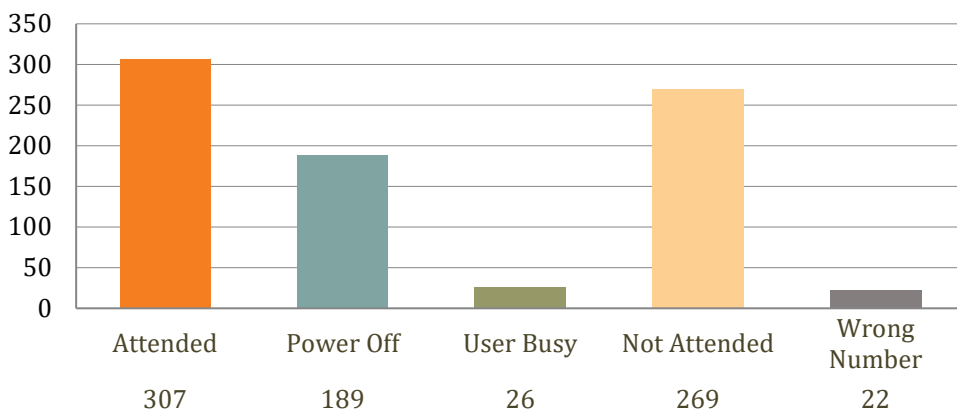
Table 1: Summary of Call Responses

No.	Summary of Call Responses	Frequency
1	Attended	307
2	Powered off	189
3	User busy	26
3	Not attended	269
4	Wrong number	22

Source: Authors’ calculations.



Figure 1: Summary of Call Responses



Source: Authors' calculations.

Course Track of All Graduates

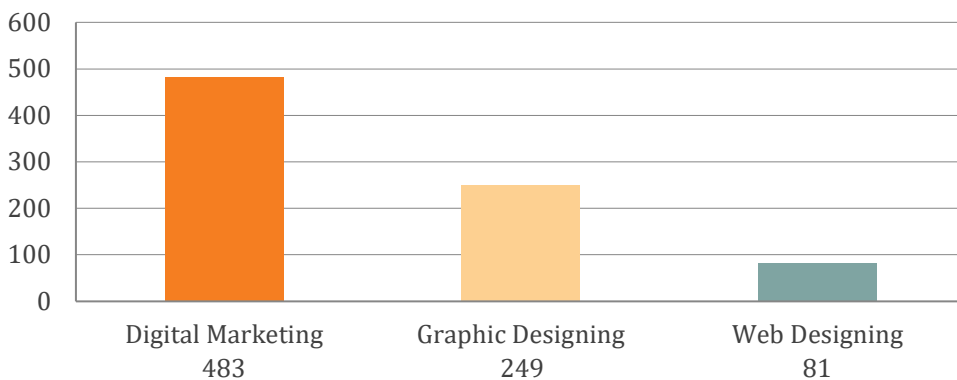
The existing data records indicate that among 813 graduates, 483 chose to study digital marketing, 249 opted for graphic design, and 81 students completed their training in web development.

Table 2: Course Track of NFTP Graduates

No.	Course Track	Frequency
1	Digital Marketing	483
2	Graphic Designing	249
3	Web Designing	81

Source: Authors' calculations.

Figure 2: Course Track



Source: Authors' calculations.

Course Track of Respondents

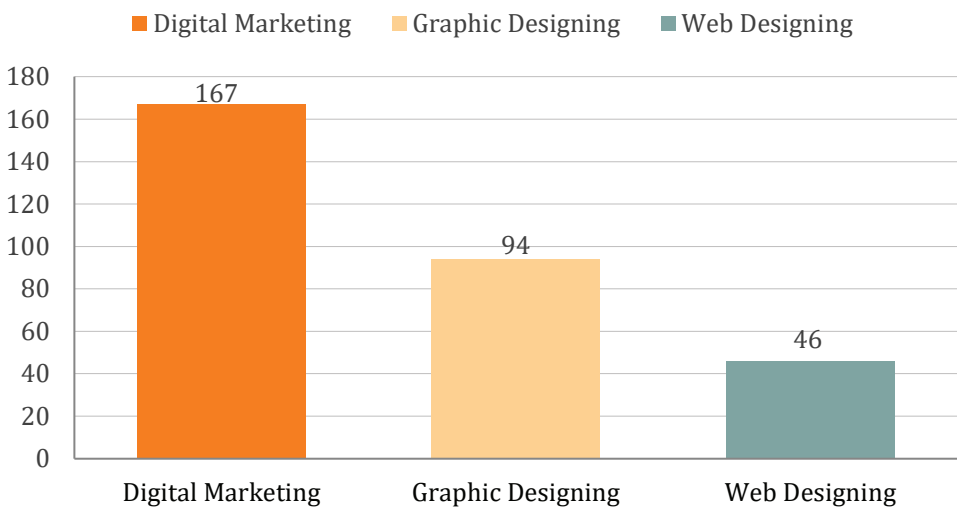
Figure 3 presents the distribution of course tracks among the 307 survey respondents. Digital marketing emerged as the most popular domain, with 167 graduates. Graphic design attracted 94 participants, while 46 respondents completed the web development track.

Table 3: Course Track of Respondents

No.	Course Track of Respondents	Frequency
1	Digital Marketing	167
2	Graphic Designing	94
3	Web Designing	46

Source: Authors' calculations.

Figure 3: Course Track of Respondents



Source: Authors' calculations.

Enrollment in Training Batches

The table below shows that initial student enrollment in the NFTP courses was relatively low. However, participation steadily increased in subsequent batches, with the highest turnout observed in the most recent cohort. This upward trend suggests a growing awareness and positive reputation of the NFTP over time.

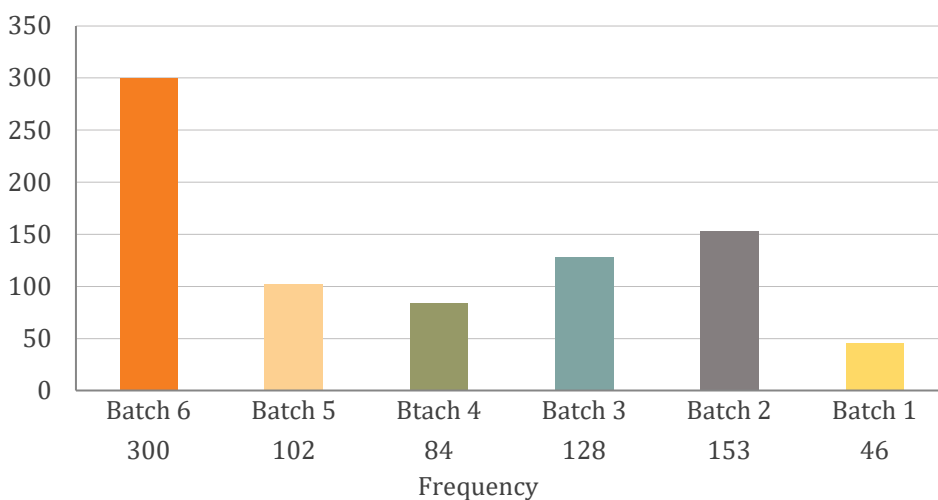


Table 4: Enrollment in Training Batches

No.	Enrollment in Training Batches	Frequency
1	Batch 06	300
2	Batch 05	102
3	Batch 04	84
4	Batch 03	128
5	Batch 02	153
6	Batch 01	46

Source: Authors' calculations.

Figure 4: Enrollment in Training Batches



Source: Authors' calculations.

Educational Background of the NFTP Graduates

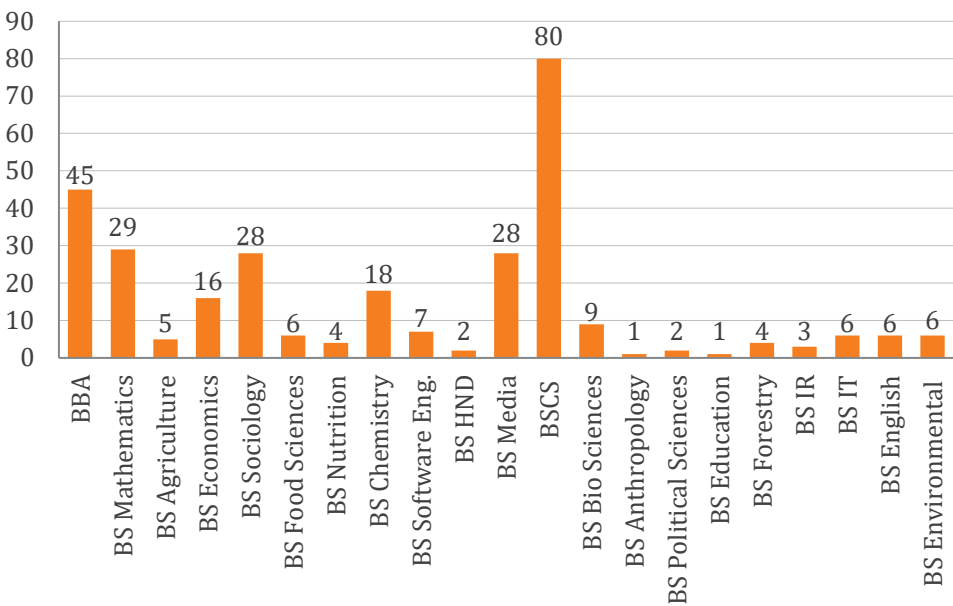
Figure 5 highlights the academic diversity of students enrolled in the NFTP, representing various disciplines and skill sets. The majority of participants came from BSS and BBA backgrounds, indicating a strong interest by computer science and business students. In contrast, enrollment from social sciences was notably low, suggesting a disciplinary imbalance in freelancing participation and engagement.

Table 5: Educational Background of the NFTP Graduates

Degree	Frequency	Degree	Frequency
BBA	45	BSCS	80
BS Mathematics	29	BS Bio. Sciences	9
BS Agriculture	5	BS Anthropology	1
BS Economics	16	BS Political Sciences	2
BS Sociology	28	BS Education	1
BS Food Sciences	6	BS Forestry	4
BS Nutrition	4	BS IR	3
BS Chemistry	18	BS IT	6
BS Software Eng.	7	BS English	6
BS HND	2	BS Environmental	6
BS Media	28		

Source: Authors' calculations.

Figure 5: Degree Programme-Wise Enrollment in Training



Source: Authors' calculations.

Degree Status of the Participants

Table 6, as well as Figure 6 below, illustrates the total number of students registered across NFTP batches. Of the participants, 281 were university graduates, while only 26 were currently enrolled students. This suggests that freelancing holds greater appeal among graduates compared to those still pursuing their studies.



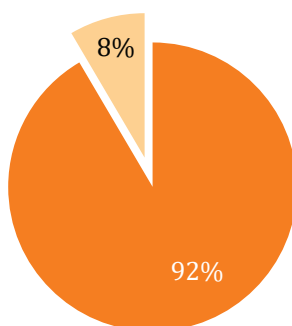
Table 6: Degree Status of Respondents

No.	Respondents Degree Status	Frequency
1	Graduated	281
2	Active Student	26

Source: Authors' calculations.

Figure 6: Degree Status of Respondents

Graduated Active Students



Source: Authors' calculations.

Instruction Method

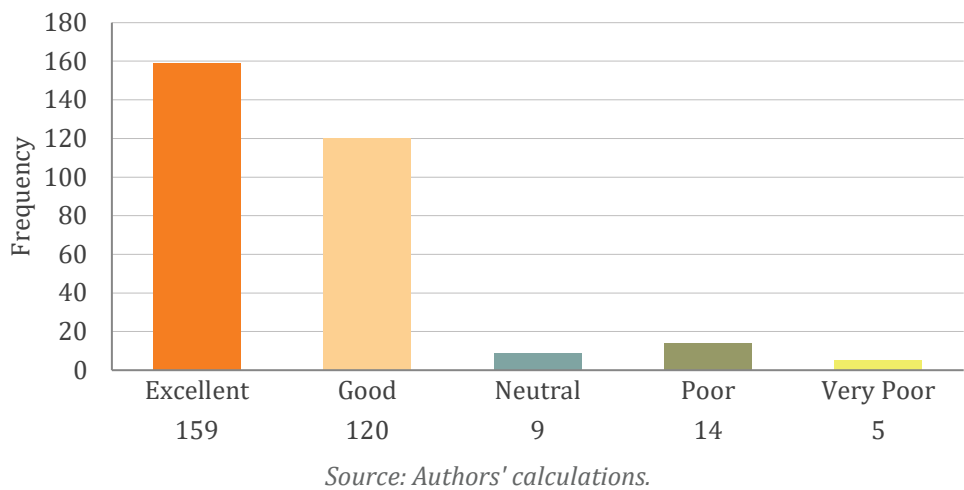
Figure 7 presents responses to a question regarding the trainers' instructional style. A total of 158 participants rated the pedagogy as "Excellent," while 120 marked it as "Good," indicating high satisfaction. In contrast, 14 participants rated the teaching approach as "Poor," and 5 described it as "Inferior." Additionally, 9 participants did not provide a valid response. Overall, the data suggest that most respondents were satisfied with the instructional methods of the trainers.

Table 7: Instruction Method

S#	Instructional Method	Frequency
1	Excellent	159
2	Good	120
3	Neutral	9
4	Poor	14
5	Very Poor	5

Source: Authors' calculations.

Figure 7: Instruction Method



Overall Satisfaction with Training Course

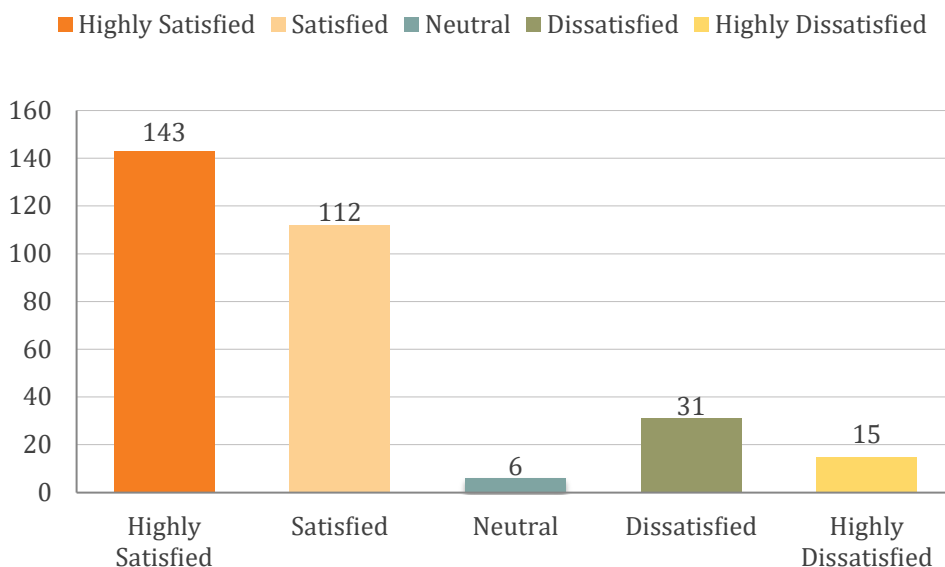
In response to the question regarding the respondents’ satisfaction with the training programme, 143 students expressed satisfaction, while 112 participants responded "Yes" to indicate approval. Only 12 participants responded with "No." Additionally, 31 students rated the training quality positively, and 8 described it as "Very Poor." When viewed more broadly, the data suggest that most respondents were satisfied with the overall quality, management, and curriculum of the NFTP.

Table 8: Satisfaction with the Training Course

No.	Satisfaction with the Training Course	Frequency
1	Highly Satisfied	143
2	Satisfied	112
3	Neutral	6
4	Dissatisfied	31
5	Highly Dissatisfied	15

Source: Authors' calculations.

Figure 8: Satisfaction with Training Course



Source: Authors' calculations.

Course Duration

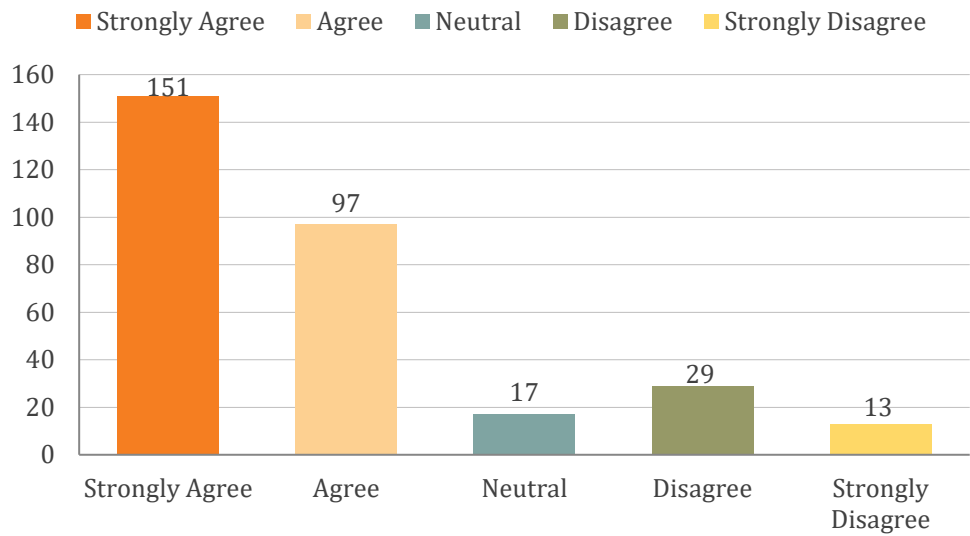
In response to the question regarding the course duration, 248 participants expressed satisfaction by selecting "Strongly Agree" or "Agree." Meanwhile, 42 participants indicated dissatisfaction with the length of the programme, and 17 did not provide a valid response. Overall, most respondents were content with the course duration as designed.

Table 9: Duration Suitability

No.	Duration Suitability	Frequency
1	Strongly Agree	151
2	Agree	97
3	Neutral	17
3	Disagree	29
3	Strongly Disagree	13

Source: Authors' calculations.

Figure 9: Course Duration Suitability



Source: Authors' calculations.

Relevance of Course Content

In the survey on the market relevance of the course content, 239 students indicated that they found the material relevant, while 54 participants deemed it irrelevant. This suggests that the NFTP includes content that is aligned with industry needs. However, further research could help refine and improve the programme’s effectiveness.

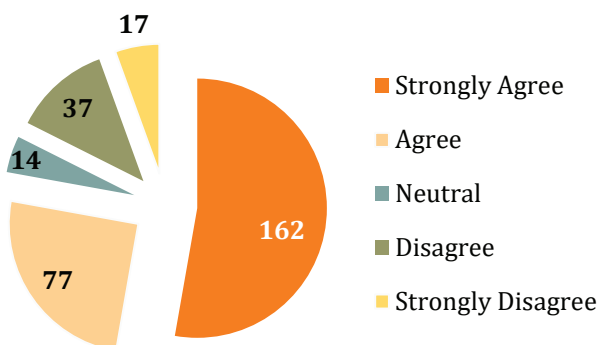
Table 10: Relevance of the Course Content

No.	Relevance of Course Content	Frequency
1	Strongly Agree	162
2	Agree	77
3	Neutral	14
3	Disagree	37
3	Strongly Disagree	17

Source: Authors' calculations.



Figure 10: Relevance of Course Content



Source: Authors' calculations.

Previous Experience with Freelancing

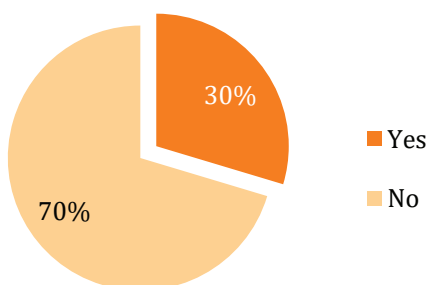
Of the 307 respondents, 91 students reported having no prior experience in freelancing at the time of enrollment in the NFTP, while 216 had some level of experience in the field. This indicates that most participants entered the programme with a foundational understanding of freelancing, suggesting that the NFTP may serve as both an introduction for newcomers and a skill-enhancing platform for those with prior experience.

Table 11: Previous Experience with Freelancing

No.	Previous Experience with Freelancing	Frequency
1	Yes	91
2	No	216

Source: Authors' calculations.

Figure 11: Previous Experience with Freelancing



Source: Authors' calculations.

Exposure of Online Freelance Platforms

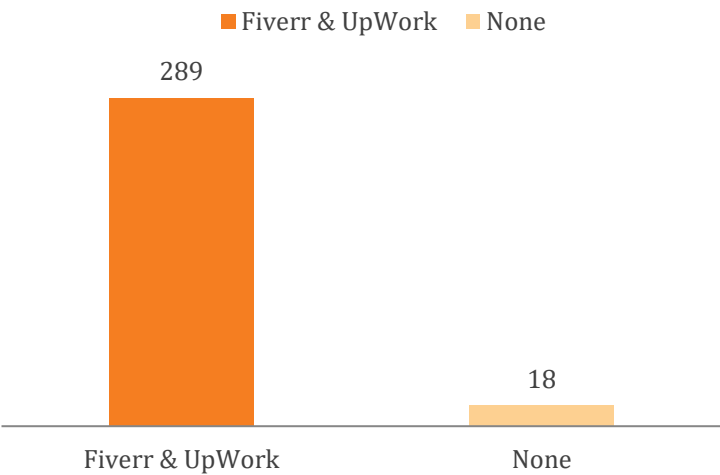
Figure 12 and Table 12 below show the hands-on experiences of participants during the NFTP. Of the 307 respondents, 289 indicated that the trainer provided valuable practical exposure to online freelancing platforms, such as Fiverr and Upwork, during the training. In contrast, 18 participants reported not gaining practical understanding or hands-on experience with these platforms during the course. This suggests that most students found the training effectively linked to real-world freelancing environments. However, there may be room for improvement in ensuring all participants achieve similar levels of practical exposure.

Table 12: Practical Experience

No.	Practical Experience	Frequency
1	Fiverr & Up Work	289
2	None	10

Source: Authors' calculations.

Figure 12: Practical Experience



Source: Authors' calculations.

Working as a Freelancer

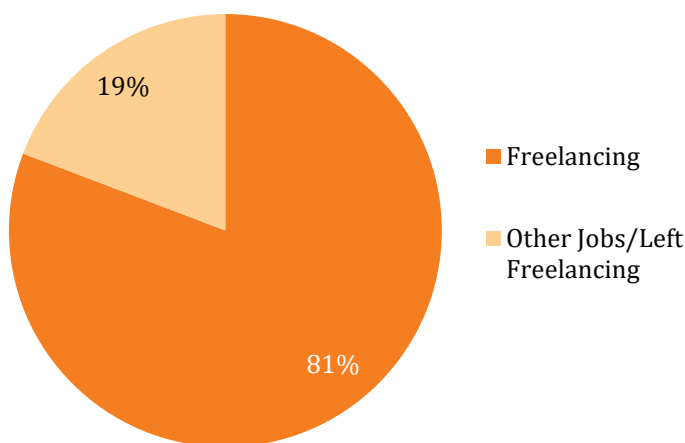
Out of 307 respondents, 248 indicated that they were working as freelancers, demonstrating that a substantial proportion of NFTP graduates have successfully transitioned into freelancing after completing the programme. In contrast, 59 students reported not pursuing freelance work following their graduation. This suggests that the NFTP has had a positive impact on equipping graduates with the skills needed to enter the freelancing market. However, other students may have chosen alternative career paths or faced challenges in securing freelance opportunities.

Table 13: Respondents' Work Status

No.	Respondents Work Status	Frequency
1	Working as Freelancers	248
2	Other Jobs/Left Freelancing	59

Source: Authors' calculations.

Figure 13: Respondents' Work Status



Source: Authors' calculations.

Earnings from Freelancing

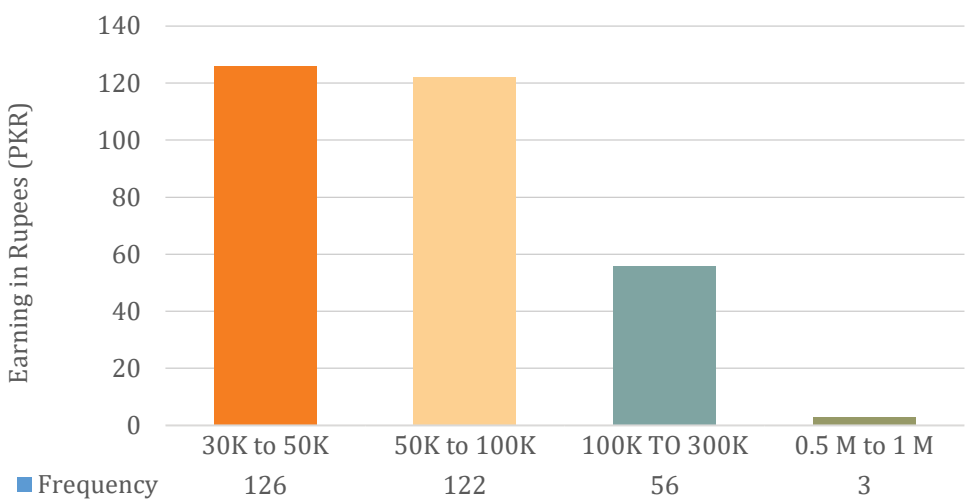
The earnings distribution among NFTP graduates showcases varying levels of freelancing success. The largest group, consisting of 126 freelancers, earned between PKR 30,000 and PKR 50,000, while 122 individuals progressed to earning between PKR 50,000 and PKR 100,000. A smaller segment of 56 freelancers reached earnings between PKR 100,000 and PKR 300,000, and just three high achievers earned between PKR 500,000 and PKR 1,000,000. This distribution highlights freelancing as a viable career path, with income growth closely tied to factors such as experience, skill development, and market positioning.

Table 14: Total Earnings

No.	Total Earnings	Frequency
1	PKR 30,000 to PKR 50,000	126
2	PKR 50,000 to PKR 100,000	122
3	PKR 100,000 to PKR 300,000	56
4	PKR 0.5 million to PKR 1 million	3

Source: Authors' calculations.

Figure 14: Total Earnings



Source: Authors' calculations.

Freelancing – A viable source of income

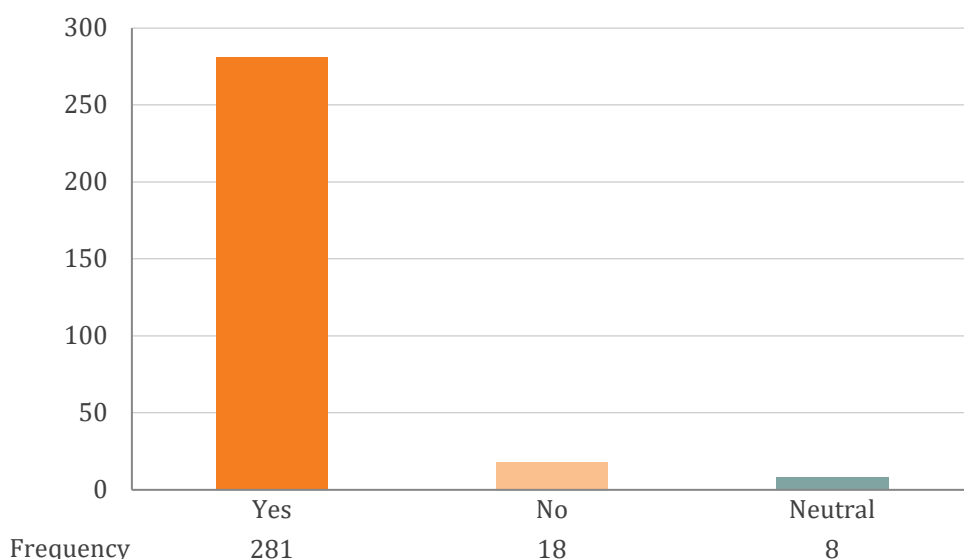
The survey results highlight the perception of freelancing as a viable income-generation opportunity for the GB youth. The majority (281 respondents) viewed freelancing as a promising career path, indicating strong confidence in its potential for economic empowerment. A small group (18 respondents) disagreed, suggesting concerns about challenges such as market competition, client access, or skill gaps. Meanwhile, **eight respondents** remained neutral, reflecting uncertainty or a lack of sufficient experience in freelancing.

Table 15: Freelancing – A Viable Source of Income

No.	The potential of freelancing as a viable income-generation opportunity for the youth of GB	Frequency
1	Yes	281
2	No	18
3	Neutral	8

Source: Authors' calculations.

Figure 15: Freelancing Income-generation for Youth of GB



Source: Authors' calculations.

Government’s Role in Promoting Freelancing

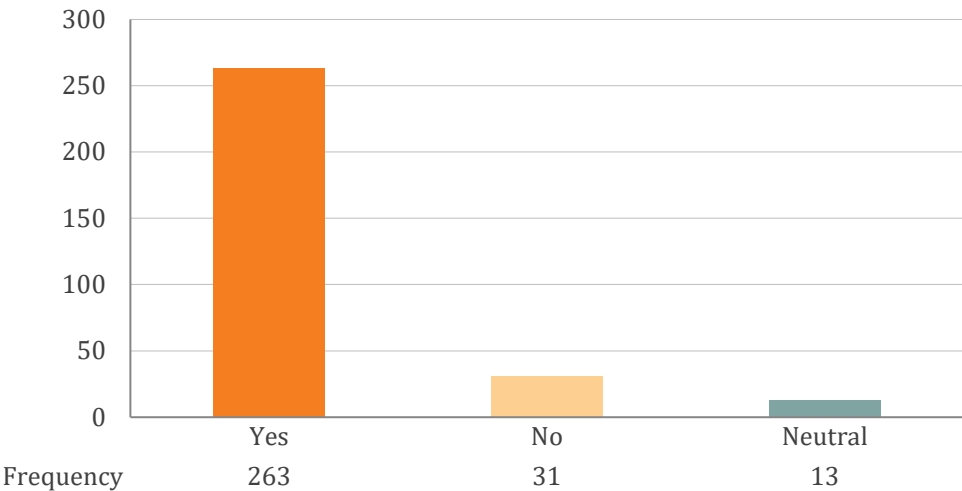
Survey results indicate strong support for government-led initiatives aimed at promoting freelancing among youth through programmes such as NFTP. Most respondents (263) agreed that such programmes are crucial in skill development and economic empowerment. In contrast, 31 participants expressed disagreement, possibly due to concerns about the programme’s effectiveness, sustainability, or the allocation of resources. Additionally, 13 respondents remained neutral, suggesting uncertainty or insufficient information. Overall, the findings underscore the growing recognition of freelancing as a viable career path and emphasise the need for continued government support to nurture a sustainable and inclusive freelancing ecosystem.

Table 16: Government Should Promote Freelancing Among Youth

No.	Should the government promote freelancing among youth through programmes like NFTP?	Frequency
1	Yes	263
2	No	31
3	Neutral	13

Source: Authors’ calculations.

Figure 16: Government Should Promote Freelancing Among Youth



Source: Authors’ calculations.



Freelancing Choices: Career Path or Supplemental Income?

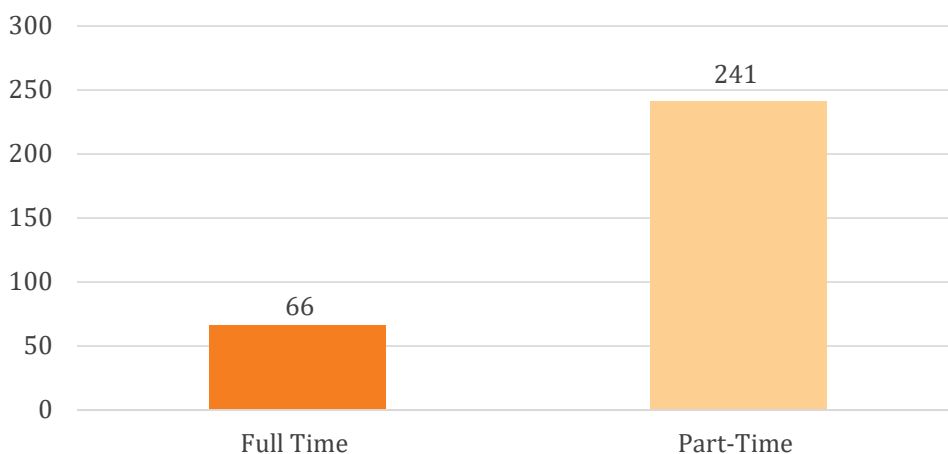
The survey results indicate a divided perception of freelancing as a career path for educated youth. A significant number (139 respondents) considered freelancing a full-time career, reflecting confidence in its potential for sustainable income and professional growth. However, a slightly larger group (168 respondents) viewed it as a part-time job, suggesting that many individuals see freelancing as a supplementary source of income rather than a primary career. This split highlights the need to explore further freelancing’s long-term stability, skill development, and market opportunities to encourage its adoption as a mainstream career choice.

Table 17: Freelancing Choices: Career Path or Supplemental Income?

No.	Can we consider freelancing a career for educated youth, or should it be treated as a part-time job?	Frequency
1	Full Time	66
2	Part-Time	241

Source: Authors’ calculations.

Figure 17: Freelancing as a Profession



Source: Authors’ calculations.

Embedding Freelancing in Formal Education Programmes

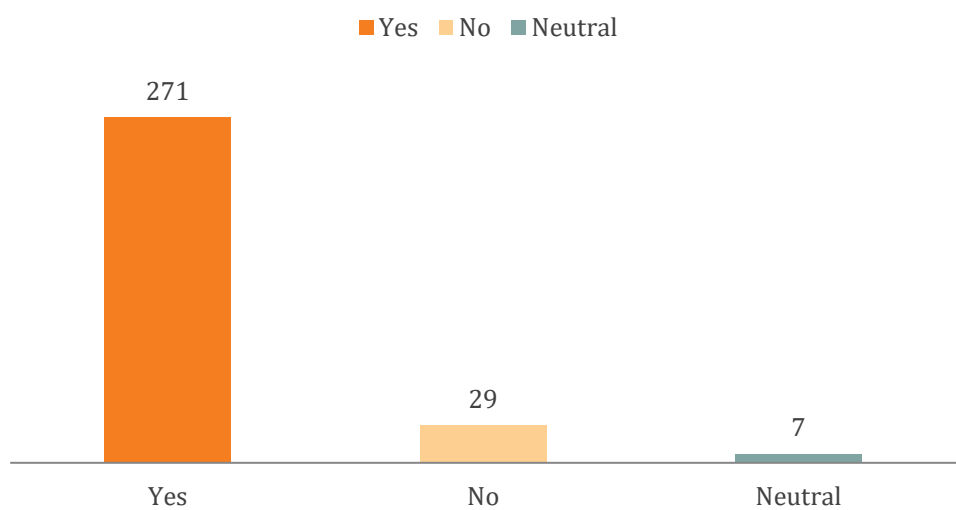
Survey results reveal strong support for integrating freelancing into regular academic programmes in GB. Most respondents (271) endorsed the idea, recognising freelancing as a valuable skill that can expand students’ career prospects amid the emerging gig economy. A smaller group (29 respondents) opposed this integration, potentially due to concerns about curriculum overload or scepticism regarding freelancing’s relevance as a formal academic subject. Meanwhile, 7 respondents remained neutral, indicating uncertainty or a need for more information about its practical implementation. Overall, the findings highlight a growing recognition of freelancing as an essential skill in the digital economy and underscore the need for structured educational initiatives that prepare students for future work opportunities.

Table 18: Embedding Freelancing in Formal Education Programmes

No.	Should freelancing be a part of the regular academic programmes in GB?	Frequency
1	Yes	271
2	No	29
3	Neutral	7

Source: Authors’ calculations.

Figure 18: Freelancing as a Part of Regular Academic Programmes



Source: Authors’ calculations.



Working as a Team or Individual

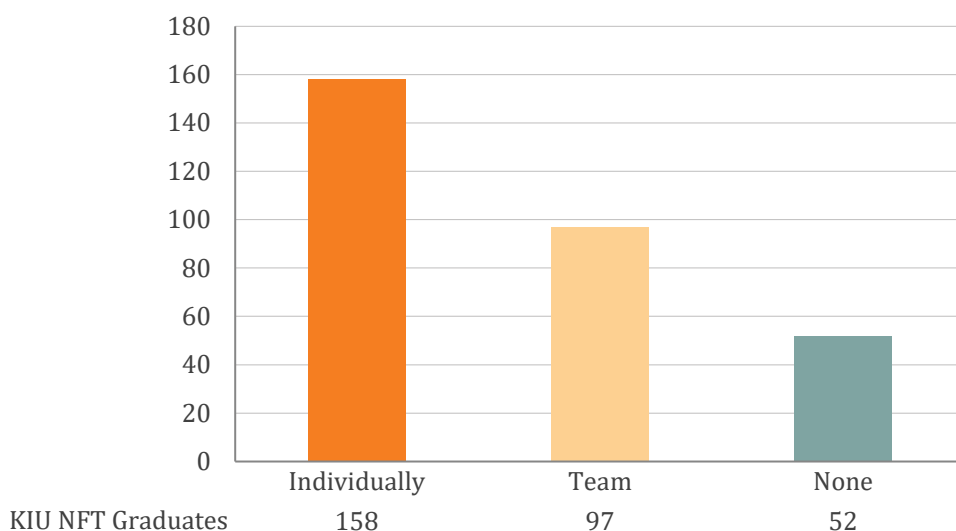
In response to this question, 158 survey participants reported working independently after graduating from the NFTP. Meanwhile, 97 graduates stated that they were collaborating with teams, either individuals or companies, and 52 respondents indicated that they were not working with anyone. These findings suggest that most NFTP graduates prefer to pursue freelancing individually, highlighting the dominant trend of independent work within the freelancing ecosystem.

Table 19: Working Style

No.	Working in a team or individually?	Frequency
1	Individually	158
2	Team	97
3	None	52

Source: Authors' calculations.

Figure 19: Working Style



Source: Authors' calculations.



5. FINDINGS & DISCUSSIONS

This report's findings and discussion section is structured using a research triangulation approach, ensuring a comprehensive and multi-faceted understanding of the freelance landscape in GB. As outlined in the methodology section, the quantitative survey findings were triangulated through qualitative in-depth interviews and FGDs with key stakeholders. These stakeholders included NFTP trainers, top-rated freelancers, founders of freelancing companies who had graduated from NFTP, and representatives from the IT Department of GB. The findings were categorised into major and sub-themes to validate and expand upon the survey results and presented to the interviewees and FGD participants for further discussion.

To enhance the depth and clarity of the discussion, supportive questions were incorporated, allowing participants to elaborate on the findings' context, challenges, and implications. This iterative process helped cross-verify the survey outcomes, refine interpretations, and ensure that the discussion captured the real-world dynamics of freelancing in GB. Additionally, relevant literature was referenced throughout the discussion, further contextualising the findings within broader academic and industry perspectives. By employing this rigorous triangulation approach, the study provides a multifaceted and well-substantiated view of the existing freelance landscape in GB.

Programme Design

The survey data show that the graduation rates in all batches were significantly higher, surpassing initial projections. While previous skills-based training programmes at KIU, such as those conducted in collaboration with NAVTTC, had varying levels of student engagement, the NFTP witnessed unprecedented commitment and successful completion rates. Out of approximately 1,400 enrolled students across six batches, 813 met the stringent graduation criteria, which included maintaining at least 80% attendance and successfully activating Fiverr and Upwork accounts. This 58% graduation rate was substantially higher than the anticipated 30%, signalling a shift in the attitudes and motivations of GB's youth toward freelancing.

When these findings were presented to the FGD participants and interviewees, they attributed the programme's success to its effective design, which was target-oriented and focused on practical exposure and experience of the freelance market's requirements. The trainers mentioned that NFTP



adopted a proactive approach, enabling flexibility and iterative improvements tailored to participants' needs. For instance, initially, the programme did not accommodate already enrolled students. However, adjustments were made in response to high demand, ensuring more participation.

Another distinguishing feature highlighted by the respondents was the rigorous and professional hiring process for trainers. Unlike conventional training programmes, NFTP's selection criteria went beyond academic qualifications and domain expertise to assess candidates' achievements as freelancers. Trainers underwent customised training on teaching pedagogies and freelance training management, significantly contributing to higher student engagement, attendance, and graduation rates. Furthermore, NFTP operated under a dynamic and structured management framework, with a dedicated on-ground team at KIU managing local operations, while a professional team at the Freelance Wing - PITB in Lahore provided technical support and strategic oversight. These teams maintained daily coordination to resolve challenges and track progress, ensuring smooth operations. This management model helped NFTP succeed, making it a benchmark for designing better freelance training programmes in GB.

Training Process and Pedagogy

A set of survey questions was designed to assess training pedagogies (Figure 7), the relevance of the training content (Figure 10), and overall satisfaction with the course (Figure 8). The responses indicated that most of the NFTP graduates were satisfied with the training experience. Additionally, participants were asked whether they had started working as freelancers, formed teams, or started freelance companies, provided training to others, and had generated income from freelance work. The analysis revealed that most trainees successfully transitioned into freelancers, whether part-time or full-time, and many went on to establish their own companies and trained/mentored others.

These outcomes suggest that NFTP has played a significant role in promoting freelancing in GB. The findings reinforce the effectiveness of the NFTP, which not only met but exceeded expectations in terms of its outcomes. These survey results were triangulated with the qualitative data to explore further the NFTP training process, structure, and pedagogical approach. Responding to specific questions, the training process, and pedagogy, NFTP trainers mentioned that NFTP was a well-structured programme that went beyond generic freelancing training, instead offering comprehensive training and mentorship using relevant content, providing exposure to online platforms, and helping the trainees create their freelance accounts.

The interview respondents also reported that, given the growing demand for freelancing skills, several new training programmes have been initiated by both the government and the private sector. However, the effectiveness and quality of these programmes remain questionable. On the government side, NAVTTC has started freelancing courses in partnership with private organisations. Similarly, NGOs follow a model that funds private training institutions to conduct freelancing courses. Additionally, several private freelancing companies offer independent training programmes targeting aspiring freelancers.

Despite the expanding freelance landscape, respondents expressed concerns about the quality of these training programmes. Many of these programmes lack structured training content and do not adequately assess the expertise and experience of the trainers. The respondents highlighted that most trainers engaged in these programmes had never participated in a formal training before teaching freelancing courses. This raises questions about the effectiveness of the training provided. Consequently, the participants of these training courses often fail to find online work in the competitive freelancing market. Respondents also highlighted standardisation and quality issues that persist in these programmes. Except for a few, none of these training initiatives follow a standardised curriculum, accreditation process, or certification system to ensure the quality of instruction. This lack of oversight means many trainees complete their courses without acquiring the practical skills necessary to secure online work. As put forward by a top-rated freelancer, *"These poorly designed freelancing training courses by different institutes often lead to 'frustration instead of hope'."* She further explained that freelancing is not just about taking a course but about acquiring in-demand skills and effectively applying them in the global market. There is a "training trap" in GB, where youth are repeatedly enrolled in freelancing programmes that fail to impart practical and job-oriented skills. Other respondents also agreed that these training sessions often focus more on theoretical knowledge than hands-on experience, leaving many young freelancers disillusioned when they struggle to secure online work.

The founder of another freelance start-up pointed out that most regional training initiatives lack a structured mentorship programme. *"Success is not just about knowing a skill; it's about applying it to attract global clients,"* he further explained. Many training providers in the GB focus on mass enrollment rather than quality. These programmes often fail to impart essential skills to navigate online job platforms and develop client acquisition strategies. As a result, thousands of trained freelancers enter the market without clearly understanding how to secure work, negotiate contracts, or establish long-term client relationships.



While the existing literature positively associates digital skills development training with securing online jobs (Fiers, 2024), other studies highlight that merely acquiring technical skills may not be sufficient for long-term success in freelancing (Fazio et al., 2025). Training programmes must go beyond skill development and focus on a holistic approach, nurturing entrepreneurial capabilities, and equipping them with strategies to navigate uncertainties. For instance, Chen & Soriano (2022) argue that freelancers should be trained to diversify their income streams by adopting multiple platforms and offering a range of services, rather than relying on a single skill or marketplace. Similarly, Blyth et al. (2024) underscore the importance of communication skills and knowledge of payment tools, enabling freelancers to maintain client relationships even when they lose access to a specific platform. Furthermore, research by Anwar & Graham (2020) highlights the role of individual-level tactics in enabling gig workers to assert their agency and manage precarious employment conditions.

Promoting Freelancing in GB: Relevance & Value

In the second part of the survey, specific questions were asked of the NFTP participants about the potential of online freelancing as a new job market in GB. Participants were asked if freelancing is a viable source for income generation (Figure 15), whether it is a full-time or part-time career (Figure 17), whether the government should prioritise it as a key employment sector (Figure 16), and whether it should be integrated into regular academic programmes (Figure 18). As outlined in the introduction and methodology sections, these questions were directed at NFTP graduates to assess the relevance and potential of freelancing as a sustainable career path amid rising unemployment in GB. The survey responses were presented to the interview and FGD participants to better understand the underlying trends and their broader implications. The following sub-section presents these key insights in detail.

Freelancing – A Ray of Hope

As previously discussed, GB faces an acute unemployment crisis exacerbated by structural economic constraints, limited industrialisation, and underdeveloped service sectors. Moreover, the otherwise famous potential economic sectors, i.e., tourism and mining, have failed to generate mass-level employment despite being celebrated for their potential for many decades. Against this backdrop, freelancing is perceived as an alternative income source and a socio-economic equaliser, allowing individuals from remote and



resource-constrained areas to integrate into the global digital economy. Figure 15 summarises the responses where the respondents attach value to freelancing as a potential sector for employment generation in GB.

One interviewee reflected on this paradigm shift. *"After graduating from university, I was kind of hopeless about finding a job. I applied for numerous government jobs, including low-paid positions, but without success. Then, I learned about the NFTP and enrolled in a digital marketing training course. After a year of consistent effort, I finally gained momentum in this market. I must say, freelancing saved me from falling into despair. Now, while I plan to start another business, freelancing remains my primary source of income."* This and many other individual success stories tell a lot about the new employment trends in Pakistan, where the gig economy is rapidly expanding. Many educated youth consider it an alternative employment path amid rising unemployment and financial uncertainty in the country. The gig economy seems to provide a solution by offering employment possibilities on a global scale (Irfan, 2023).

From a policy perspective, respondents asserted that freelancing should be formally recognised as a strategic employment sector in GB. He pointed out that, unlike industrially and agriculturally advanced provinces, GB does not have a manufacturing base, large-scale agriculture, or major infrastructure projects to absorb its growing labour force. This observation underscores the need for institutional support mechanisms to strengthen GB's freelancing ecosystem. While freelancing offers immediate and scalable employment opportunities, sustaining this momentum requires systemic interventions.

To further illustrate the transformative impact of freelancing, this report presents two detailed case studies of NFTP graduates from KIU in Appendix. These case studies offer further insights into the factors influencing the decision to pursue freelancing as a full-time career and provide empirical evidence reinforcing the notion that freelancing should not be treated solely as an alternative employment model.

Freelancing – Tackling the Uncertainty

While freelancing is emerging as an attractive job market, the survey data show that most NFTP graduates consider freelancing a part-time or additional income-generating opportunity (Figure 17). Upon inquiring about this, a few interviewees disagreed and suggested that freelancing is no longer a marginal or supplementary employment model in GB; rather, it is becoming a mainstream career choice for many. The opponents argued that freelancing is



an uncertain market, and choosing it as a full-time career might not be a good option. This opinion is not entirely untrue, as the literature reports that freelancers frequently experience career declines, and this profession has no steady and linear career advancement. The digital platform's working conditions and mechanisms continually push freelancers in different directions, keeping them in a quicksand that is always in motion (Gussek & Wiesche, 2024). Likewise, the study of Fazio et al. (2025) presents the case of El Salvador and asserts that online freelancing may not be the first-choice employment path for some individuals. Explaining the context of a specific programme in El Salvador, the study reveals that 95% of programme participants, who initially expected to work as online freelancers within a year, changed their minds after gaining exposure to the online market. Within one year, 35% of participants decided to quit freelancing as a career, and the most common reason for not doing so (reported by 37%) is that online freelancing income was very unstable.

Two top-rated freelancers, now running their own companies, suggested that an individual freelancer who relies solely on their technical skills may struggle to sustain a full-time freelancing career in the face of fierce competition, the risk of skills becoming obsolete due to AI, and other personal challenges. They recommended starting a freelancing-based start-up and gradually building a team to grow the company rather than keep working as an individual freelancer. This approach can facilitate a smoother transition from part-time work to freelancing as a full-time career. The study by Baptista et al. (2023) supports this argument by stating that enhancing workers' entrepreneurial skills leads to improved outcomes in the online labour market. Discussing an intervention piloted in Haiti in 2022, the study highlights the need for an entrepreneurial approach to improving online freelancing.

Prioritising the Gig Economy – Government's Role

The survey asked respondents whether the government should prioritise promoting freelancing as a formal employment market in GB. The majority of respondents supported this idea, emphasising that freelancing offers a viable solution to the rising unemployment in the region. When this data was presented to FGD participants, they opined that the provincial government should prioritise freelancing as a formal employment sector by devising policies that address the challenges and barriers to freelance success. In general, freelancers in Pakistan face multiple challenges, and GB is no exception. The study by Irfan (2023) highlights several key challenges Pakistani freelancers face, including structural issues such as poor internet connectivity, payment problems, and unstable electricity supply.

In the context of GB, the government's role in fostering a vibrant ecosystem for digital workers remains limited. To harness the potential of the digital economy, the GB government should formally recognise freelancing as a legitimate sector, create an enabling environment, and invest strategically in targeted skill development programmes. Additionally, the FGD participants emphasised that the government's role is crucial in enhancing digital infrastructure, including reliable internet access, secure payment gateways, and co-working spaces, which could improve their ability to compete in the global gig economy. They also emphasised the need for government-sponsored customised mentorship programmes to help newcomers navigate online platforms effectively. They highlighted that freelancing would remain an untapped opportunity rather than a sustainable career path without targeted government interventions.

Recently, the IT Department of GB has initiated a programme that provides soft loans to strengthen freelancing companies. While this programme has encouraged the growth of freelancing-based startups, its scope remains limited due to stringent funding conditions imposed by the partnering bank, which restricts its accessibility to a broader group of aspiring freelancers. Another noteworthy programme was “High Impact Skills Development Program in AI, Data Science, and Blockchain, which was the first significant intervention by the GB government to train 500 students in Gilgit and Skardu. The programme has been completed, but no impact assessment has been conducted to evaluate its impact and success.

Besides these government-led initiatives, other organisations, such as the Special Communications Organization (SCO), the Agha Khan Rural Support Program (AKRSP), and the Gilgit-Baltistan Rural Support Program (GBRSP), have also entered the freelancing space with targeted interventions. The SCO has focused primarily on providing internet and co-working spaces for freelancers, following a rental model. On the other hand, the AKRSP and the GBRSP have partnered with national and international organisations to offer customised freelancing training. However, no impact assessment of these interventions has been made public, making it difficult to determine their effectiveness. Without proper evaluation mechanisms, it remains unclear whether these programmes are genuinely contributing to sustainable employment or merely adding to the already prevalent “training trap” in the region.



Lights Out, Signals Lost: Reliable Power and Internet Remain Distant Dreams

The survey included a question regarding the government's role in promoting freelancing in GB. The majority of respondents agreed that the government should formally recognise freelancing as an emerging sector for job creation. During follow-up discussions with FGD participants, it was emphasised that the government's primary responsibility is ensuring a reliable power supply and stable internet connectivity. GB continues to face serious challenges related to digital infrastructure, including frequent power outages and limited internet access. Despite years of attention, these fundamental issues persist, posing major barriers for individuals striving to establish and sustain freelance careers.

While there has been considerable discussion and written commentary on these "national issues," the situation in GB differs from other regions of Pakistan, where multiple service providers offer internet access. In GB, the community primarily relies on the SCO, as Pakistan Telecommunication Company Limited (PTCL) does not operate in the region. Although internet problems are common throughout Pakistan, GB faces challenges due to its unique administrative structure and geographical limitations. Frequent power outages worsen the situation, disrupting workflows and making it difficult for freelancers to meet deadlines and maintain a reliable online presence.

To address these challenges, the SCO has recently introduced its "Fiber to Home" service, designed to enhance internet connectivity in GB. While respondents acknowledged that this initiative has shown promising results, its availability remains limited to selected areas, leaving many freelancers without access to high-speed internet. The owners of the freelancing companies emphasised the need to make special arrangements to expand this service to all major towns in GB, ensuring that more individuals can benefit from stable internet connections. Additionally, the respondents highlighted the need for government and private sector intervention to establish alternative solutions, such as promoting freelancing hubs. These hubs could serve as co-working spaces equipped with high-speed internet and an uninterrupted power supply, providing freelancers with an affordable and efficient working environment. These findings align with other studies in Pakistan, where researchers highlight the essential role of the government in removing barriers to enhance participation in the gig economy (Ishaq & Akram, 2023).



Micro-Credentials: Implications for Higher Education

The survey findings indicate strong support for integrating freelancing courses into the curriculum. Commenting on this survey finding, the respondents explained that integrating a course on freelancing skills will surely enhance students' employability and provide them with income-generating opportunities while they are still studying. This is particularly relevant in economically underdeveloped regions, such as GB, where limited employment opportunities make financial self-sufficiency essential for students. The success stories of Kulsoom Shifa and Muzaffer Faqir (Annexe-I) provide evidence about the transformative impact of freelancing education, as both individuals learned freelancing skills at an early stage in their academic careers, which helped them better prepare themselves for this evolving job market. Building on these success stories, KIU formally introduced a course on "Digital Skills and Freelancing" into undergraduate degree programmes. This initiative includes three specialised courses in digital marketing, graphic design, and e-commerce in various departments. Although a formal impact assessment of this initiative has yet to be conducted, an interview with the Director of Academics at KIU provided insights into its early outcomes. He noted that, based on informal feedback and departmental observations, the course has gained significant popularity quickly. He further emphasised that if quality standards are maintained, the programme has the potential to create a tangible and lasting impact on students' employability and economic independence.

While proponents argue that integrating freelancing courses will enrich higher education by equipping students with market-relevant skills, scholars caution that micro-credentials, including freelancing certifications, may inadvertently reshape higher education in ways that prioritise immediate job-market alignment over broader learning objectives. As Wheelahan & Moodie (2022) argue, micro-credentials can lead universities to become overly responsive to employer demands, shifting their role from institutions of comprehensive knowledge creation to job-training centres. This shift risks undermining the holistic value of degree programmes by excessively emphasising short-term employment prospects rather than long-term intellectual and professional development. Critics also warn that micro-credentials might devalue traditional academic qualifications by promoting 'micro-value' certifications that lack the depth and rigour of full-degree programmes (Kato et al., 2020).



Nevertheless, the rise of the gig economy has already challenged traditional models of higher education by altering the long-established relationship between education and income. The increasing demand for freelance and digital work has made conventional degree pathways less relevant for a significant portion of the workforce. In developing countries like Pakistan, where 64% of the population consists of youth, ignoring the gig economy's impact would be a missed opportunity. The country is already a major supplier of skilled freelancers to global gig markets, and equipping students with relevant digital skills could further strengthen its competitive edge in this sector. Thus, while concerns about the overemphasis on micro-credentials are valid, a balanced approach is necessary, one that integrates freelancing courses into degree programmes without entirely replacing broader academic learning (Radic et al., 2022). Freelancing courses should complement, rather than replace, traditional academic disciplines, ensuring that students graduate with both critical thinking skills and practical expertise. By doing so, higher education institutions can align themselves with global workforce trends while preserving the long-term value of university degrees.

6. CONCLUSION

This study examined the freelancing landscape in GB, aiming to better understand it by benchmarking the successes of NFTP at KIU. Using a mixed-method approach, this study combined survey data, interviews, and focus groups to generate policy recommendations. Findings confirm NFTP's positive impact on promoting freelance skills and access to freelancing opportunities. While freelancing is seen as viable, its long-term sustainability requires more than technical skills, including entrepreneurship training, financial literacy, and comprehensive policy support. This research offers thorough insights into the current freelancing ecosystem in GB and provides a well-grounded analysis for promoting freelancing as a viable income-generating opportunity for educated youth. Therefore, a comprehensive strategy is needed to formalise and strengthen the freelancing sector in GB. Addressing the gaps outlined in the study will unlock the gig economy's transformative potential, create sustainable employment, improve economic resilience, and empower GB's youth in the global digital marketplace.

7. RECOMMENDATIONS/POLICY IMPLICATIONS

- a) The findings of this study suggest that the government should adopt a proactive approach to promote the freelance sector. By addressing existing barriers and implementing policies that facilitate skill development, digital access, and financial inclusion, freelancing could significantly contribute to GB's economic growth. A well-structured approach would create employment opportunities for the region's educated youth and integrate GB into the broader digital economy, ensuring long-term economic resilience.
- b) To promote a structured and sustainable freelancing ecosystem in GB, it is recommended that a dedicated freelancing unit be established within the newly formed GB IT Board. This unit should adopt a multi-stakeholder governance model, involving representatives from academia, the private sector, NGOs, experienced freelancers, and policymakers.
- c) The unit should be responsible for certifying training providers to ensure the delivery of high-quality and market-relevant programmes; coordinating freelance initiatives across government, NGOs, and the private sector to avoid duplication and enhance impact; and monitoring and evaluating ongoing programmes to ensure effectiveness and drive continuous improvement. It should also maintain a comprehensive freelancer database to support evidence-based policymaking, build strategic linkages with national and international freelancing platforms to expand market access, and advise policymakers by representing freelancers' needs and challenges in shaping inclusive digital economy strategies. This unit will be a central platform to align GB's freelancing efforts with global trends and unlock sustainable digital employment opportunities.
- d) The government should establish and manage "Smart Freelancing Hubs (SFLHs)" across GB that focus on demand-driven skill development and hands-on mentorship, rather than generic training. These SFLHs should prioritise training in high-demand freelancing skills instead of mass training in limited domains. They can adopt an apprenticeship model, where trainees gain hands-on experience by working under top-rated freelancers. Additionally, these hubs must address key infrastructure challenges, such as internet connectivity and power supply, to create an enabling environment for digital work.



To minimise costs, the government should avoid major spending on physical infrastructure and instead utilise existing government schools and colleges in the second shift. Resources should be directed toward digital infrastructure, training programmes, and other necessary expenses, rather than toward brick-and-mortar facilities.

- e) A blended learning approach should be adopted for training programmes offered in SFHs or by other institutions, where certified trainers should serve as facilitators. At the same time, the content is delivered through online training platforms, such as Coursera or Google Certificates. There should be equal emphasis on Job search strategies, communication skills, profile optimisation, and client engagement, which should be mandatory components to prepare freelancers for the realities of the job market.
- f) To support the growth of freelancing, the government should introduce a special loan and grant scheme catering to the financial needs of individual freelancers and those aiming to establish freelancing companies. The scheme should have two categories. The first category should support individual freelancers who require essential equipment, such as a good smartphone, a laptop, a small solar unit for power backup, SCO's fiber-to-home connection, and basic furniture like a table and chair. The second category should target aspiring freelance entrepreneurs who require financial support to establish their freelancing companies, including office space, advanced equipment, and team-building costs. Financing should be provided through easy-banking methods, including low-interest loans and, where possible, grants supported by donor-funded programmes from renowned NGOs operating in GB.
- g) Following KIU's model, traditional IT courses in colleges and university campuses should be replaced with a foundational course on digital skills and freelancing, particularly in the social sciences and humanities departments. This course should be thoughtfully designed to give students a strong foundation in digital platforms, remote work tools, online job searching, and freelancing marketplaces. This will enable them to explore alternative career paths beyond traditional employment early in their lives.

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APPENDIX

Success Story of Kulsoom Shifa- Women's True Empowerment

Kulsoom Shifa, a graduate of NFTP, never imagined pursuing a career in digital marketing as a freelancer. She had completed a Bachelor's degree in English, but found that high unemployment rates and an irrelevant university curriculum made traditional career paths difficult. By chance, she stumbled into the freelancing market, and despite the initial uncertainty, she is now very happy with her career choice. She firmly believes that freelancing is a great ray of hope for the youth of GB, providing them with opportunities to earn and grow in ways that traditional employment cannot offer.

After completing her time at KIU, Kulsoom partnered with her husband to begin their freelancing journey. Their first niche was search engine optimisation (SEO), but they struggled to gain traction and eventually decided to pivot. After thorough research via YouTube and freelance platforms, they identified LinkedIn marketing as an underexplored but lucrative area. Committed to mastering this niche, they rigorously spent a month and a half learning and practising LinkedIn marketing techniques.

Freelancers in GB face unique obstacles, including frequent power outages and limited infrastructure support. To overcome these barriers, Kulsoom and her husband relocated to Karachi, where they found better market access and networking opportunities. They connected with industry experts, refined their skills, and officially launched their LinkedIn marketing gig. Although the niche was relatively new in Pakistan, it offered immense business expansion possibilities.

Initially, Kulsoom and her husband secured small projects, completed them diligently, and gradually moved toward higher-value contracts. Her husband's expertise in SEO became a key advantage, allowing them to integrate SEO strategies into LinkedIn marketing and differentiate themselves from competitors. As their earnings grew, they reinvested in scaling their business by hiring a dedicated team. This expansion significantly improved their efficiency, enabling them to handle multiple projects simultaneously. Their monthly earnings soon reached 1.5 million PKR, validating their strategic shift.



After achieving financial stability, Kulsoom decided to address the challenge of power outages by installing solar panels and backup supplies in their home. This move allowed them to return to their hometown without compromising their work. With a successful business model and a thriving team, Kulsoom plans to open a training centre to empower other youth in Gilgit-Baltistan by equipping them with high-paying freelancing skills.

Based on her experience, Kulsoom strongly believes that freelancing courses should be integrated into university curricula. She acknowledges that while her Bachelor's degree in English has value, her short freelancing course (micro-credential) has provided her with far greater financial returns. She encourages universities to adopt skill-based training programmes that align with market needs and provide students with real earning potential.

Kulsoom's journey underscores the importance of continuous learning, strategic adaptation, and persistence in freelancing. Her advice for newcomers includes being consistent, adapting to market trends, overcoming challenges creatively, and investing in skill development. Watching tutorial videos, networking with experts, and working tirelessly for fourteen hours a day played a critical role in her achievements.

Kulsoom Shifa's success story is an inspiring example of how dedication, mentorship, and strategic shifts can help overcome obstacles and achieve financial independence through freelancing. Her journey from struggling with an unsuccessful gig to becoming a leader in LinkedIn marketing illustrates that with the right mindset and effort, freelancing can be a sustainable and lucrative career choice, especially for the youth of Gilgit-Baltistan.

Success Story of Muzaffar Faqir - From Economics Graduate to Top Freelancer

Muzaffar Faqir, another NFTP beneficiary, is an economics graduate from KIU and a successful freelancer. His story demonstrates how adaptability, persistence, and skill acquisition can lead to remarkable career shifts. Overcoming various challenges, he has completed over 200 projects and now earns approximately PKR 1.2 million monthly, working independently and as an email marketing specialist for a Canadian construction company. His journey is an inspiring example of how freelancing can provide financial independence and career growth, particularly for the youth of Gilgit-Baltistan.



A graduate of KIU with a BS in Economics, Muzaffar never envisioned a career in digital marketing or freelancing. However, he explored alternative career paths when faced with high unemployment rates and a curriculum that did not align with market demands. His introduction to freelancing was accidental when KIU announced the National Freelance Training Program during his fifth semester. He enrolled despite having no prior knowledge of freelancing. This decision turned out to be life-changing.

The NFTP course provided him with foundational knowledge, and his trainer played a crucial role in guiding him and his batchmates until they were capable of earning independently. After completing the programme, Muzaffar struggled to secure his first projects on platforms like Upwork and Fiverr. He remained persistent, continuously refining his skills and applying for gigs. His perseverance paid off when he secured his first project, though it was worth only six dollars and required 18 days to complete, it fuelled his motivation and strengthened his determination.

Freelancing demands continuous learning and adaptability. Understanding that communication is key to success, Muzaffar dedicated himself to improving his language skills, recognising that effective client interactions could significantly enhance his earning potential. Additionally, he faced infrastructural challenges common in GB, including slow internet and frequent power outages. He sometimes considered relocating to a city with better facilities, but personal circumstances kept him rooted in his hometown. Instead of giving up, he found ways to work around these limitations, maintaining consistency and commitment to his freelancing career.

Over time, Muzaffar built a solid reputation for delivering high-quality work. His growing expertise in email marketing attracted high-paying clients, leading to larger and more complex projects. His dedication and skill mastery eventually secured him a lucrative position as an email marketing specialist for a Canadian construction company, which now pays him 400,000 PKR per month. In addition to his job, he continues to work independently, bringing his total monthly earnings to approximately PKR 1.2 million.

Recognising the transformative power of freelancing, Muzaffar has taken the initiative to train his family members, helping them establish their careers in the digital marketplace. His story highlights the vast opportunities freelancing offers and reinforces his belief that young professionals should acquire relevant skills before entering the market. He strongly advocates for integrating freelancing courses into university curricula, as his short course



(micro-credential) in freelancing has proven far more financially rewarding than his four-year degree. However, he still values the academic foundation his degree provided.

Muzaffar Faqir's success story underscores the importance of resilience, skill development, and market adaptability. His journey from an unaware student to a top freelancer inspires the youth of Gilgit-Baltistan, proving that freelancing is a viable and lucrative career path. He firmly believes that young people can leverage freelancing for financial independence and professional growth with proper guidance, dedication, and perseverance.



THE IMPACT OF TDAP WOMEN DEVELOPMENT PROGRAMME ON BUSINESS PERFORMANCE AND TECHNOLOGY ADAPTION IN FEMALE ENTREPRENEURS

Misbah Tanveer¹

ABSTRACT

The adoption of information communication and digital technology is increasingly being considered an enabler for women entrepreneurs in building personal and firm capabilities and improving access to the markets. Women's participation in entrepreneurship in Pakistan could be higher due to the region's challenging sociocultural and institutional context. In such a scenario, technology and its adoption offer promising potential for women entrepreneurs to grow and scale their businesses. This project conducted an impact assessment of the TDAP women entrepreneurs training programme, designed to address the gaps in training and capacity building of women entrepreneurs for digital literacy in Pakistan. We employed the mixed-methods approach to analyse the role of digital enablement training programmes. We collected the primary data from women entrepreneurs who attended the TDAP training programme by developing a comprehensive questionnaire and conducting a Survey. Moreover, to capture the qualitative context, we organised a roundtable panel discussion with experts from industry, academia, NGOs, and government organisations. Our findings suggest that TDAP training programmes significantly impact women entrepreneurs by improving their digital skills, boosting confidence, and enhancing key business outcomes. Based on findings, comprehensive targeted policy recommendations are presented to ensure the inclusivity, accessibility, and practicality of these training programmes.

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1. INTRODUCTION

Entrepreneurship has been widely accepted as an integral cog in modern economic development and growth machinery. Entrepreneurs innovate, develop businesses, earn profits, and create jobs; consequently, an economy flourishes. Gender inequality in entrepreneurship is especially concerning because it defies economic efficiency and equity principles. Limiting half the population's access to opportunities is counterintuitive. Women often face unequal access to financial resources, business networks, and mentorship opportunities, not because of differences in ability, but because of deeply ingrained societal structures. Over time, socialisation processes reinforce these barriers, creating a cycle in which women's entrepreneurial potential is systematically underdeveloped. Factors such as fear of failure and lack of confidence in perceived capabilities further limit women's participation in labour markets through entrepreneurship. As per the Global Gender Index, Pakistan is one of the worst countries in gender parity, ranking 142nd out of 146 countries (WEF, 2024). This means that because women face such severe barriers to economic participation and opportunities, they are forced out of the loop of formal education in many cases. In Pakistan, most out-of-school children are girls. Therefore, while training is essential for all entrepreneurs, women must overcome these barriers and thrive. Digital enablement is an enabler for women entrepreneurs as it opens a wide range of opportunities and reduces the digital divide.

Interpreting entrepreneurship as a skill that can be learned has important implications. One of these implications is that it means entrepreneurship can be developed with active and conscious effort. It is well known that business-related education and training improve the possibility of becoming successful entrepreneurs. However, a lack of training opportunities is one of the major obstacles women face in their entrepreneurial journey. The Government of Pakistan has explicitly recognised the need to invest money into entrepreneurship development programmes, especially those designed to bridge the gender gaps to meet the SDGs (CCP, 2023).

One such initiative is the Women Entrepreneurship Development Plan (WEDP), led by the Trade and Development Authority of Pakistan (TDAP). TDAP aims to conduct comprehensive workshops to create a more conducive business environment for women. This will be done in three phases from 2023 to 2025, the first of which has been completed. This capacity-building programme aims to target each category of women entrepreneurs- new entrepreneurs, established entrepreneurs, developed wholesale producers, and export-oriented producers and guide their transformations into successful exporting businesses.



The WEDP is a crucial initiative that represents a significant advancement in supporting women entrepreneurs. To ensure its continued success, it is essential to incorporate feedback and implement quality assurance measures. There is an unfortunate gap between policies and initiatives that can only be bridged through the collaboration of all stakeholders. Conducting an impact assessment of the completed phase of the WEDP will provide invaluable feedback on how the workshops have influenced the business practices of women entrepreneurs. Additionally, given the pronounced digital divide between genders in Pakistan, it is imperative to understand its impact on entrepreneurship comprehensively. Such insights are essential for designing programmes that yield optimal results for the trainees. The importance of WEDP and the evaluation of its quality lies in its potential to bridge gaps in digital literacy and promote economic empowerment for women in Pakistan.

The rest of the report consists of the following sections. Section 2 discusses the gender disparity in Pakistan's labour market and the digital divide. Section 3 presents the literature review. Research questions and proposed methodology are discussed in Sections 4 and 5. Findings and qualitative and quantitative analyses are presented in Sections 6 and 7. Section 7 also discusses the policy recommendations based on findings, while Section 8 concludes the report.

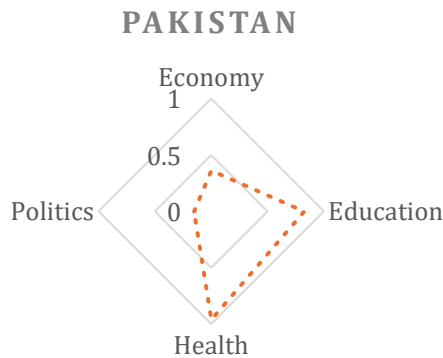
2. GENDER DISPARITY AND DIGITAL DIVIDE

Over time, the adoption of digital technology has become the driver of gender equality and an enabler for promoting women-led businesses. The success or failure of entrepreneurs has become increasingly linked with their ability to effectively utilise technology to produce, market, sell, and innovate. However, the relentless underlying gender inequality means that women are left behind, not only in the landscape of business but also in the narrower field of technology adaptation. The problems in the adoption of technology by women entrepreneurs arise due to the unique challenges they face regarding knowledge, access, and usage of said technology.



Figure 1: Global Gender Index 2023

Pakistan: Global Gender Index Report



	2023		2022	
Index and Sub-index	Score	Rank	Score	Rank
Global Gender Gap Index	0.575	142	0.564	145
Economic Participation and Opportunity	0.362	143	0.331	145
Educational Attainment	0.825	138	0.825	135
Health and Survival	0.961	132	0.944	143
Political Empowerment	0.152	95	0.156	95

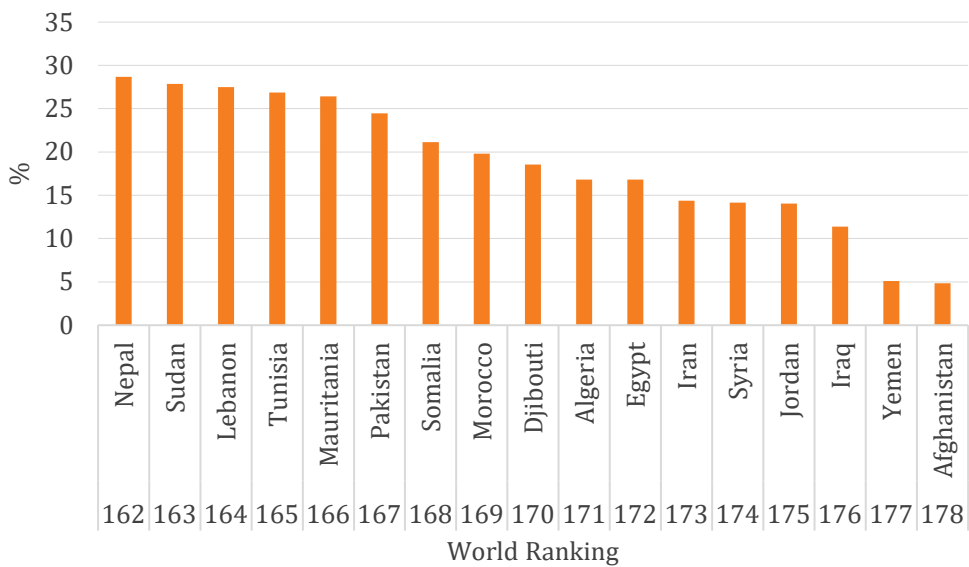
Source: WEF (2024).

Women account for half of the population in Pakistan, but their economic participation is not very promising. Female entrepreneurship is even more severely lacking in Pakistan. It ranked 142nd out of 146 countries in the Global Gender Index in 2023, with economic participation and opportunities among the poorest in the world (Figure 1). Not just entrepreneurship, but female labour force participation is one of the lowest in the world, ranking 167 out of 178 countries in 2023 (Figure 2). Moreover, as of 2016, only 25% of female university graduates joined the workforce (Tanaka & Muzones, 2016). Another dimension of gender disparity in the business landscape is the wage difference, with women's median monthly pay being only PKR 12,000 compared to PKR 18,600 for men in 2023 (ILO, 2024). Therefore, it is easy to see that the conditions of gender parity in Pakistan leave much to be desired.

There is a marked lack of governmental data on female entrepreneurship in Pakistan. However, according to the Global Entrepreneurship Monitor (GEM), only 5% of the total number of entrepreneurs in the country were female as of 2012. In the same vein, a survey conducted by the World Bank revealed that there are only 1% female entrepreneurs for every 21% male entrepreneurs in 2022 (World Bank, 2022).



Figure 2: Female Labour Force Participation – 2023



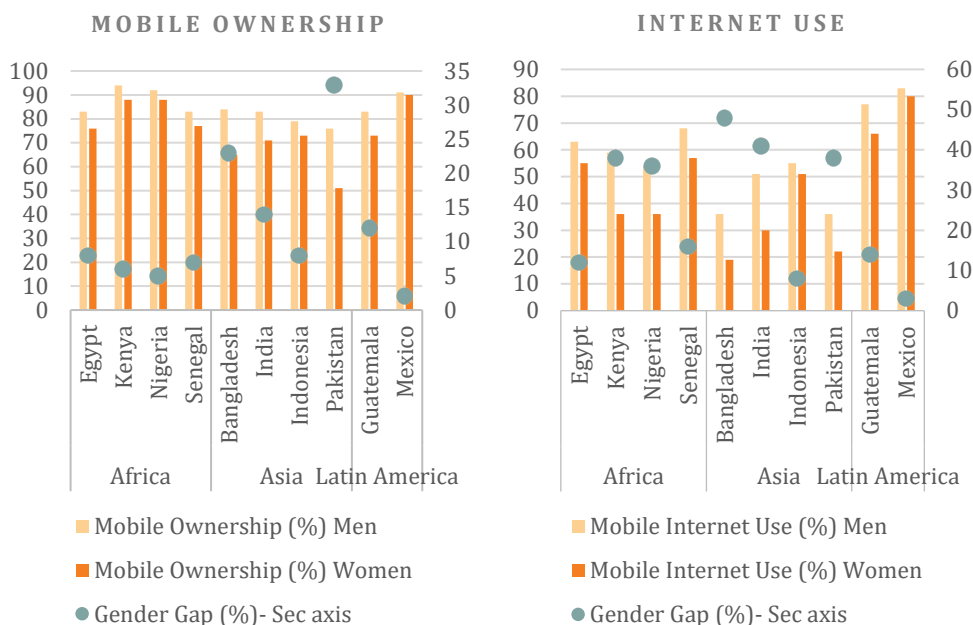
Source: *Globaleconomy.com (n.d.)*.

As discussed, women’s economic empowerment is less than ideal. However, this problem is caused and further exacerbated by the lack of women’s access to digital tools and services. After all, if they are not afforded the same level of knowledge, their positions as entrepreneurs are not expected to be at the same level as their gender counterparts. As per the UNDP, in 2023, only 50% of women own a mobile, as opposed to 81% of men. Similarly, women are 45% less likely to use mobile internet than men. The GSMA Consumer Survey in 2021 shows similar statistics (Figure 3).

The GSMA Survey also revealed that only 49% of the Pakistani women who considered work an essential part of their lives thought owning a mobile phone helped them in their work. In contrast, 81% of men thought owning a mobile phone was helpful in their work. This clearly shows that women face challenges in leveraging technology in their work. These challenges may be digital literacy, socioeconomic norms, and resource access. In addition, there are barriers to using the internet. In Pakistan, the main reasons for not using the internet are literacy and digital skills for both males and females. However, the second most important reason for males and females is different, with women facing family disapproval and men finding it irrelevant (see Table 1). Another thing to notice is that this problem is also prevalent in other regional countries.



Figure 3: Mobile Ownership and Internet Use by Gender – 2021



Source: GSMA (2023).

Table 1: Top Barriers to Internet Usage – 2021

Ranking	Bangladesh		India		Indonesia		Pakistan	
	Women	Men	Women	Men	Women	Men	Women	Men
1	Literacy and digital skills	Literacy and digital skills	Literacy and digital skills	Literacy and digital skills	Afford-ability	Afford-ability	Literacy and digital skills	Literacy and digital skills
2	Safety and security	Safety and security	Afford-ability	Afford-ability	Literacy and digital skills	Safety and security	Family disapp-oval	Releva- nce
3	Afford-ability	Afford-ability	Releva- nce	Safety and security	Releva- nce	Literacy and digital skills	Releva- nce	Afforda- bility

Source: GSMA (2023).



3. LITERATURE REVIEW

The understanding of entrepreneurship as the driving force of innovation was hypothesised more than 100 years ago by Joseph Schumpeter (1934). His idea is a powerful one due to its innate common sense: entrepreneurs innovate, develop businesses, earn profit, create jobs, and consequently, the economy flourishes. Be that as it may, defining entrepreneurship remains challenging (Sanyang & Huang, 2010). One successful operational definition of entrepreneurship is that it is a behavioural characteristic of individuals seeking opportunities and being decisive and steadfast in introducing their ideas (Wennekers & Thurik, 1999). In this definition, an entrepreneur is not an occupation but an individual behaviour exhibited in creating an organisation (Gartner, 1988). This definition may lead one to think that the emergence of an entrepreneur is based on the conditions of personality and individual performance. However, gender inequality in entrepreneurship challenges the notion that individual traits solely determine entrepreneurial success.

Gender inequality in all its forms defies common sense. However, it is more galling in the domain of business, a domain of the modern capitalist economy that focuses on profit maximisation. Therefore, it simply does not make sense that, for example, women are paid only 77 cents for each dollar their male counterparts earn (UN Women, n.d.). Similarly, 2.4 billion women worldwide are afforded different economic opportunities than men (Trumbic, 2020). Similar disparities, unfortunately, exist in the field of entrepreneurship. It is not surprising considering the economic disempowerment of half of the world's population; nonetheless, it is all the more disheartening, especially since research has time and again shown that such disparities in entrepreneurship do not exist due to an inherent difference in gender psyches (Sexton & Bowman-Upton, 1990) but, instead, are a product of socialization (Shahriar, 2018).

Expectedly, the differences that arise in entrepreneurial capabilities then end up being the consequence of sociocultural factors that influence essential aspects of business growth, such as experience (Fischer et al., 1993; Terjesen, 2005) and networking (Kalafatoglu & Mendoza, 2017). This creates a vicious cycle: socialisation fosters gender disparity in entrepreneurship, and this disparity reinforces the roots of socialisation. 'Fear of failure' and 'perceived capabilities' are the most critical sociocultural factors in the likelihood of a woman becoming an entrepreneur (Noguera et al., 2013).



However, this is evident through the research of DeTienne & Chandler (2004), who prove that opportunity-seeking and, through it, innovation can be taught, and this process increases the likelihood of entrepreneurship. Similarly, research has conclusively shown that entrepreneurship education and training improve the possibility of students becoming entrepreneurs and the financial gains they earn if they do become entrepreneurs (Martin et al., 2013). The effectiveness of training in increasing the likelihood of entrepreneurship gives stakeholders a clear directive of what can be done to improve the conditions of entrepreneurship; these stakeholders may be governmental agencies, policymakers, and even entrepreneurs themselves.

The digital divide is an old concept, first appearing as far back as 1999 (NTIA, 1999). A comprehensive conceptual framework now defines the digital divide as the inequality in accessing and using digital information and communication technologies (ICTs) between individuals, households, businesses, and geographic areas at different socioeconomic levels (Joseph, 2001). However, the theory of the digital divide advanced by some prominent researchers is multi-faceted in that it, for example, in one case, includes not just “material” access and usage “access” but also “motivational access,” which is the inclination towards digital technology and “skills access,” which is the ability to effectively utilize computers and their networks (Dijk, 2012). In the same vein, Warschauer (2002) links access to Information and Communication Technologies (ICT) with social inclusion, the extent to which an individual can fully participate in society and have agency over their own decisions.

Through a comparison of digital access to literacy, Warschauer concludes that physical, digital, human, and social resources must all work together to integrate ICT into communities and institutions and promote material access to allow an individual to engage in meaningful social practices. Increasingly, the definitions of the digital divide are treating this inequality as a continuum rather than a black-and-white “have” and “have not” situation. The problems now are more than access and usage; they also include frequency, intensity, and objective of use (Araque et al., 2013). Considering the complex nature of the digital divide, it becomes clear that the most vulnerable to such a divide are people experiencing poverty with low household incomes and education levels (Warf, 2013; Bunyan & Collins, 2013; G. Wilson-Menzfeld et al., 2024). This was evident early on when research proved that high-income, educated people were more likely to have adopted Internet usage by the end of 2001 (Goldfarb & Prince, 2008).

Unfortunately, women undoubtedly remain one of the most vulnerable groups in society, facing inequalities from multiple ends, especially in low-income countries. For instance, in low-income countries, girls' enrolment in primary school is 78% compared to the world average of 88%, with secondary school enrolment only 33% compared to the world average of 66% in 2023 (Kattan & Khan, 2023). Similarly, women are the majority of the world's poor, with 247 million women aged 15 and older living on less than 1.9 USD per day in 2021 (Dyvik, 2024). Moreover, with a 20% pay gap in 2018 (ILO, 2024), the situation is only expected to worsen as women are given less than three-quarters of the legal rights available to men (World Bank, 2022). In such a scenario, women's empowerment becomes an important goal. This is evidenced by the fact that gender equality is recognised as the 5th Sustainable Development Goal (SDGs).

Women's economic empowerment can be achieved in multiple ways, and entrepreneurship is one of them (Al-Dajani & Marlow, 2013; Mukorera, 2020). The all-important connection between women's economic empowerment and entrepreneurship comes from multiple factors. One reason is that entrepreneurship allows women the flexibility to work from home, on hours they can manage with their domestic responsibilities, especially in low-income countries (Sarfaraz et al., 2013). Indeed, research shows that family-life balance and work-hour flexibility are significant pull factors for female entrepreneurs (DeMartino & Barbato, 2003), with women placing more weight on the non-monetary aspects of self-employment and considering self-employment to be a close substitute for part-time work (Clain, 2000; Georgellis & Wall, 2005).

However, a study revealed that women constantly have to negotiate in their capacities as entrepreneurs due to the constraints women face, so this empowerment becomes stunted and flawed (Gill & Ganesh, 2007). These constraints may include, but are not limited to, discrimination and power relations in the complex fabric of sociocultural norms (Roomi et al., 2018). In Pakistan, risk aversion, religious restrictions, and financial appropriation by family members are other challenges women face in beginning a business (Said, 2016).

Unfortunately, inequalities seldom function in isolation – such is the case with digital and gender disparities. Digital inequality and gender inequality intersect to stagnate and exacerbate the unfortunate realities of gender inequality (Törenli, 2006; Yang & Du, 2021). Similar research shows that digital disparities seem to be reinforcing the impacts of social and economic



inequalities (Warren, 2007; Polat, 2012). However, true as it may be that the advent of technology has further widened the socioeconomic gaps, it is also true that adopting technology can become a bridge.

Training and education are significant tools for developing skills and empowering participants and students. Studies have shown a conclusive link between empowerment and digital skills training (Mukherjee et al., 2024). Similar results are seen when a short, two-day business course is given, free of cost, to women microentrepreneurs, and the result is an improvement in entrepreneurial quality (Calderon et al., 2020). Research specific to Pakistan shows that the maximum impact of business skill training is observed in male clients, but there is improvement in the business knowledge of women entrepreneurs (Giné & Mansuri, 2014). This makes intuitive sense. Women are not afforded the same quality or level of education, and sociocultural norms keep them from networking (Kalafatoglu & Mendoza, 2017) or gaining valuable experience (Fischer et al., 1993; Terjesen, 2005) to put them on the same footing as their male counterparts. The discrimination also impacts women's access to capital, land, ICT, and even training and assistance (Roomi & Parrott, 2008).

However, a strategy to bridge these inequality gaps emerges through targeted skills training. Given the centrality of digital presence to modern businesses (Tiago & Veríssimo, 2014) and the nature of Pakistan's sociocultural landscape for women, digital enablement training becomes an essential strategy for the success of women microentrepreneurs in Pakistan. The importance of digital skills in Pakistan can be deduced from the proportional relation between employability and digital skills (Pirzada & Khan, 2013). Additionally, research has shown that women in Pakistan are increasingly leveraging digital technology to start their entrepreneurial careers (Ndiaye et al., 2023), and the impact of digital enablement has proved to be highly successful in the economic empowerment of rural women entrepreneurs in India, with its similar sociocultural fabric (Bertaux & Crable, 2007). Similar results are observed in the European context, with low-educated women benefitting from digital skills training programmes (Prieto & Valenduc, 2016).

It cannot be ignored that a considerable fraction of even urban women in Pakistan do not have complete autonomy in accessing and using the Internet due to conservatism, religious restrictions, or linguistic barriers (Jamil, 2021). Even so, however, results about the impact of digital enablement training programmes in Pakistan also look highly promising, with one research conducted on 280 participants of training from Benazir Bhutto Shaheed Human Resource Research Development Board (BBSHRDB) and the



National Vocational and Technical Training Commission (NAVTTTC) showing a definite increase on the performance of women entrepreneurs in Pakistan (Batada, 2022).

4. RESEARCH QUESTIONS

This research aims to examine the impact of the digital enablement training conducted by TDAP in its WETP, which aims to develop a conducive working environment for women entrepreneurs in Pakistan by arming them with the necessary opportunities for personal and professional development. However, as evidenced by the vast, in-depth literature, digital literacy and its adoption are not binary concepts. Keeping that in mind, this research aims to capture the full range of multidimensional facets of the idea, from access and knowledge to usage and productive adoption of technology for the betterment of business. Additionally, it is crucial to identify the aspects of the training that are most effective in facilitating the digital enablement of women entrepreneurs. Conversely, it is equally important to identify the crucial factors that can contribute to the expected results. This is particularly paramount because of its potential to improve further digital skills training, both provided by TDAP and otherwise.

In essence, this research project is based on the following questions:

1. How do digital training programmes impact women entrepreneurs in Pakistan?
 - 1.1 What is the women entrepreneurs' awareness and knowledge level related to e-commerce platforms after participating in the training programme?
 - 1.2 How are the trained women entrepreneurs engaging with the e-commerce platforms to grow their businesses? Are there any variations in adopting e-commerce platforms among women who have participated in the training programme?
 - 1.3 What was the impact of the training on the following:
 - a) Monthly sales
 - b) Profits
 - c) Networking opportunities



2. What specific policy recommendations can be proposed to inform the digital literacy (i.e., e-commerce) training programmes for women entrepreneurs?
 - 2.1 What specific training programme components were most valuable to the growth of the participating women entrepreneurs?
 - 2.2 How could the existing training programme on e-commerce be improved to cater to the training needs of the diverse pool of women entrepreneurs of Pakistan?

With these questions at the forefront, this study aims to provide comprehensive insights into the benefits women entrepreneurs gained from the training they attended. It also explores whether their entrepreneurial experience hindered or facilitated the assimilation of what they learned from the training. Furthermore, the research is designed meticulously to gauge the impact of training on access, knowledge, use, and adoption of new business ideas. Lastly, the study aims to understand the training's exact, numerical, and categorical impacts.

5. METHODOLOGY

The project commenced with a roundtable discussion on the digital enablement of women microentrepreneurs in Pakistan. Stakeholders from various governmental and non-governmental organisations were invited to share insights on the challenges women microentrepreneurs face, practical strategies for overcoming said challenges, and suggestions to improve the future landscape for entrepreneurship in Pakistan. The details of this activity are discussed in the forthcoming sections.

Having developed a clearer understanding of women's micro-entrepreneurship in Pakistan from the roundtable discussion, the next step was to modify the pre-made survey accordingly. The survey is a comprehensive questionnaire designed to gauge the impacts of digital enablement training on women microentrepreneurs through the WEDP initiated by the TDAP. The idea behind the survey was to link the contextual, qualitative findings from the roundtable discussion with the robust, quantitative foundation of survey results, effectively ensuring that the conclusions from this research study are thorough and well-rounded.



The survey was first administered to a group of 5-8 women entrepreneurs to make it comprehensive and ensure everything was covered. This activity aimed to ensure that the questions are relevant to their training and pinpoint the thematic areas to explore more in-depth. Their feedback was invaluable in refining the survey to meet the specific needs of the entrepreneurs.

Therefore, this research project was divided into four essential phases:

Phase 1: Stakeholders' perspective and engagement for qualitative analysis of the challenges to women microentrepreneurs and strategies available to overcome them.

Phase 2: Survey development and a pilot survey were meticulously designed to ensure ease of completion while providing a comprehensive overview of the entrepreneurship journey for women microentrepreneurs.

Phase 3: Final round of data collection, in collaboration with the TDAP.

Phase 4: Final report and dissemination of results, aimed to further enrich the literature on the impacts of digital enablement of women entrepreneurs in Pakistan.

6. ANALYSIS & FINDINGS: QUANTITATIVE ANALYSIS

As mentioned above, this project relies on qualitative and quantitative analysis. We started with a qualitative approach. After preliminary meetings with stakeholders and desk research from secondary sources, the central part of the project was a roundtable discussion with different stakeholders.

The project commenced with a roundtable discussion on the digital enablement of women microentrepreneurs in Pakistan. It was held on the 12th of July at the Suleman Dawood School of Business, LUMS, Lahore. Stakeholders from various governmental and non-governmental organisations were invited to share their insights on the challenges women microentrepreneurs face, practical strategies for overcoming said challenges, and suggestions to improve the future landscape for entrepreneurship in Pakistan. The attendees were representatives from NGOs, policymakers, academia, microentrepreneurs, and public training institutes. A total of 14 organisational representatives were present at the roundtable discussion. Inviting participants from both private and public institutions was a



deliberate decision to get a detailed picture of the support systems available and why they show the success or failure rates that they do. The discussion was highly productive in offering a comprehensive picture of the constraints that keep women microentrepreneurs from scaling up their businesses. Additionally, the strategies and ideas shared by the attendees were invaluable, coming from experts and professionals who deal with obstacles firsthand.

The roundtable discussion was invaluable in sharing information and knowledge among the participants. It was a highly productive forum that identified the challenges women microentrepreneurs face. It shared the strategies and success stories among all the present stakeholders to facilitate further progress in women's entrepreneurship in Pakistan selflessly.

Challenges in Digital Enablement of Women

Numerous challenges and obstacles were discussed during the session, which resonated with the participants' viewpoints, revealing the universality of the issues faced by women entrepreneurs in Pakistan, especially considering the diversity of the representatives in the discussion. The challenges discussed can be subdivided into four categories:

- **Low literacy rates:** these encompass business, digital, and general literacy issues.
- **Cultural constraints:** factors influenced by societal norms and expectations.
- **Entrepreneurship-related challenges** arise because many women entrepreneurs are necessity-driven rather than being opportunity-driven.
- **External factors:** external influences affecting the businesses of women entrepreneurs.

Expectedly, all problems are deeply interlinked with each other. For instance, family planning is connected both to illiteracy and to cultural constraints in different ways for women. Similarly, challenges in marketing efforts may stem from both literacy gaps and reluctance to invest additional time or resources in their ventures. However, these challenges have been categorised as such to maintain a clear yet impactful analysis. The final report will present a detailed report on the roundtable discussion. Everything mentioned here has been taken from the proceedings of the roundtable discussion.



Low Literacy Rates

In the context of this report, illiteracy includes digital, general, and business illiteracies. Digital illiteracy refers to a lack of digital skills, general illiteracy indicates an educational background not extending beyond high school, and business illiteracy means a lack of knowledge about business operations.

Numerous issues related to illiteracy were discussed during the Roundtable Discussion, a brief overview of which is summarised as follows:

Financial Exclusion: This is an unfortunate reality in Pakistan that women are financially excluded in multiple ways. This was a running theme during the entirety of the Roundtable because it is also intricately connected to digital financial literacy. While the world is moving towards mobile wallets and online payments, women are still limited to brick-and-mortar business methods.

Business Acumen: Low business acumen among women microentrepreneurs was a significant issue raised by various participants during the roundtable discussion. They expressed frustration over how these women were often completely naive about essential aspects of their business operations, such as marketing and daily operations.

Information Asymmetry: A panellist representing the Karvan Crafts Foundation made an astute observation regarding the lack of comprehension among women microentrepreneurs about the importance of digital skills and their potential impact on their businesses. The implied solution is that awareness and understanding can be cultivated in training.

Confidence and Communication Skills: A point brought up by microentrepreneurs in the fashion industry is that the lack of confidence and subpar communication skills was another major obstacle they had observed fellow microentrepreneurs face. Having attended numerous courses herself, she thought that training of any kind was invaluable, not just in the personal development of the attendees but also in increasing networking opportunities.

Business Ethics: A representative from SMEDA pointed out the regrettable lack of business ethics, especially on online platforms. She believed that while efforts to bring women up to date with current technologies were undoubtedly commendable, digital skills training must also include a module for online business ethics.



Cyber Security: Several panellists pointed out the need to make sure that women were also made aware of cyber threats and how to navigate these threats. They agreed about teaching women microentrepreneurs about privacy settings, filtering their messages or friend requests, and replying to comments.

Cultural Constraints

Cultural constraints refer to the sociocultural norms that prevent women from operating in ways that would benefit their business. These constraints may manifest in multiple ways, especially considering the patriarchal nature of Pakistan's societal fabric.

Although undoubtedly there are many cultural constraints present, the participants of the Roundtable Discussion pinpointed the following, indisputably because of their prevalence:

Ownership of Devices: The state of Pakistan's women entrepreneurship can be gauged by the fact that device ownership remains a seemingly indomitable problem. Brought up by a participant from the Multan Chamber of Commerce, she highlighted that, before the discourse can continue, it must be acknowledged that this problem is yet to be indisputably solved.

Lack of Family Planning: A representative from Bali Memorial Trust stressed the importance of family planning in all policies and efforts for women entrepreneurs. She believed that family planning was central to improving the lives of women microentrepreneurs because, in more cases than not, domestic constraints kept their businesses from reaching their full potential. A professor representing LUMS concurred with her point and added that, because of domestic responsibilities, women did not have the time to leave their houses for training, networking, or any other operational functions associated with businesses.

Networking: Networking is a significant aspect of business for any entrepreneur. However, as was agreed by all participants, it is an ever-present obstacle for women microentrepreneurs. Because women are usually busy with domestic responsibilities, they cannot take the time to network. Moreover, due to religious-cultural constraints, it might not even be considered 'appropriate' in some cases.



Funds Appropriations: This was an important point brought forth by a professor from LUMS, who cited her research in the field. Even if women are given access to mobile devices, in many cases, the transparency of mobile wallets means their family members can find out about their financial statements. This is a problem because it means these funds may be appropriated by family members, further exacerbating the problems of digital financial exclusion of women.

Entrepreneurship Related Challenges

This section discusses the problems that arise mainly because the women microentrepreneurs under consideration are necessary entrepreneurs. They are pushed into entrepreneurship due to extenuating circumstances rather than having found an opportunity that they wish to explore. These issues are characterised by the will to invest more time, effort, or capital than required and a lack of motivation to further their business.

Most of the attendees in the roundtable, in one way or another, touched upon the almost obligatory nature of women's entrepreneurship. They talked about how these women were short of options and chose this path instead. Similarly, these observations were echoed whenever attendees discussed the time poverty of women entrepreneurs, indicating that women are pushed into this journey because of the flexibility it affords them. To that end, the following are the challenges they face when pushed into entrepreneurship, as noted by the participants of the roundtable discussion:

Lack of Motivation: As highlighted by a participant from HomeNet, lack of motivation is an issue linked to several other problems plaguing women microentrepreneurs. The challenge is motivating these women to keep investing in and sticking with their businesses, even if they only make baseline profits.

Lack of Commitment: A representative from the TDAP pointed out the problem of lack of commitment among entrepreneurs. He believes that because these entrepreneurs expect immediate and big payouts when they do not receive them, they stop working towards their goals and halt business operations.

Lack of Innovation and Unique Selling Points: The lack of product differentiation and unique selling points was a unique insight that several participants provided. They noted that women microentrepreneurs end up selling the same product and do not understand the importance of innovation and product differentiation.



Exploitation: As discussed briefly in the previous section, this problem is also intricately linked with the psyches of “necessity-driven entrepreneurs.” Their need for monetary relief makes them susceptible to getting exploited by sellers and only getting minimal profits. It is highly likely, and only logical, that if they were ‘opportunity’ entrepreneurs, they might instead have chosen to invest extra effort and scale up their business themselves.

External Factors

External factors are those factors that are out of the control of women microentrepreneurs but affect them all the same. These may include, for instance, governmental policies or training curricula.

Participants were cognisant of several issues in the functioning of the organisations working towards women's entrepreneurial development, as successful as they may be in some regards. However, because improvement is always possible, they specifically highlighted the following problems:

Disconnect between Stakeholders: Several participants brought up this problem. They believed a unified platform must be developed with open access for all stakeholders to keep everyone in the loop about training resources, success stories, opportunities, etc. The lack of communication between many organisations working towards the same goal translates to ‘moving around in circles,’ which is presented by the current stagnation of progress in women's entrepreneurship.

Post-training Follow-ups: Another problem that could not have been recognised without the presence of a woman entrepreneur was the significance of post-training follow-ups, which a businesswoman in the food industry brought up. She noted that post-training follow-ups are necessary to ensure the application of the learned skills. With little to no follow-ups, women are usually left to their own devices, unable to apply their newfound skills or provide feedback about improving future training.

Home-grown Customised Technology: This was a crucial point presented by an accomplished edu-technologist. She cited that the unavailability of home-grown technology in the country significantly hinders women microentrepreneurs. Rather than forcing women to learn imported technologies, digital tools that are custom-made for women should be developed. For instance, mobile wallets that hide financial statements for privacy.

Support of Male Members of the Community: It was mutually agreed that women's entrepreneurship could not progress without supporting the community's male members, a point brought up by several participants. This perspective provided an insightful take on the obstacles faced by women entrepreneurs. The idea behind this conversation thread was that patriarchal obstacles must be softened through awareness campaigns because they cannot be forced to be removed.

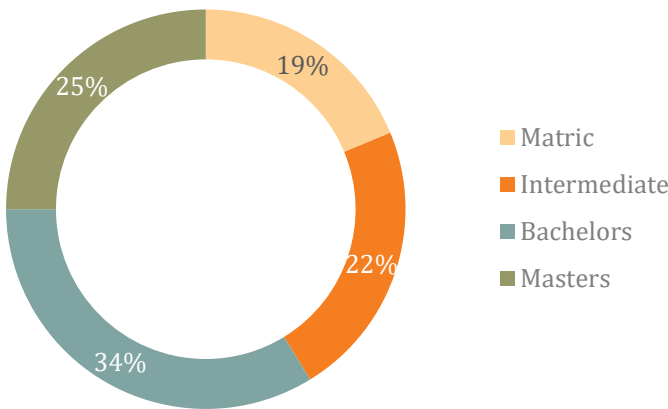
7. ANALYSIS & FINDINGS: QUALITATIVE ANALYSIS

For quantitative analysis, we collected primary data through a survey. A questionnaire was developed and distributed among the participants of the WEDP training conducted by the TDAP. We initially planned to keep the sample size of 50 women who attended the training. Surveyors were hired and trained to conduct the surveys. We collected data from 80 women entrepreneurs (40 women who participated in the TDAP training and 40 women who did not attend any training). Based on data analysis, we present some important findings here.

Demographic Profile of the Participants

The socioeconomic and demographic profile of the participants is presented below to give a clear idea of their socioeconomic background.

Figure 4: Education Level of Participants



Source: Authors' computations based on the study's primary survey data.

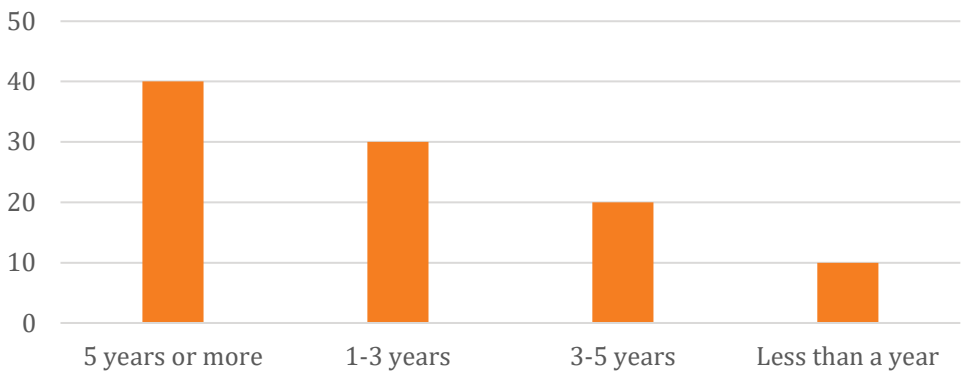


- The participants were from the 18 to 65 age bracket. There were only four participants from the young age bracket of (18-24) years, while the rest were more experienced businesswomen.
- The average family size of the participants was six persons.
- The participants' marital status indicated that 71% were married, 12% were unmarried or single, and 17% were divorced or widowed.
- The participants were educated, as 59% had either bachelor's or master's degrees (see Figure 4).
- The geographical background of the participants showed that 28% were from Attock, 19% were from Multan, 13% from Lahore, and the rest were from Faisalabad, Fateh Jang, DG Khan, Sialkot, Kasur, Islamabad, and Rawalpindi.

Business Profile of the Participants

- Analysis of the nature of business showed that 62% were artisans and related to handicraft and handmade clothing, 18% were involved in teaching activities, 12% were service providers (beauty parlours, haircutting salons, etc.), 4% were farmers, while the rest were engaged in other activities, including jewellery making, food, and spices business.
- 18% of the participants were running their business online only. Similarly, 24 % were doing in-person business dealings only, while 68 % used hybrid (online and in-person) methods to sell their products and services.
- Most participants (86%) had an online business presence, indicating familiarity with digital tools. Most participants owned bank accounts; 60% utilised digital financial tools, such as easypaisa and Jazz Cash, for their business transactions regularly, and 20% used them occasionally.
- Most participants were running their business ventures for a long time and were experienced businesswomen. Nearly 40% of the participants had been running their businesses for more than 5 years, and 30% had experience of 1-3 years (see Figure 5).
- Most of the businesses had employed more workers, while only 35% of participants were working alone to run their business venture.

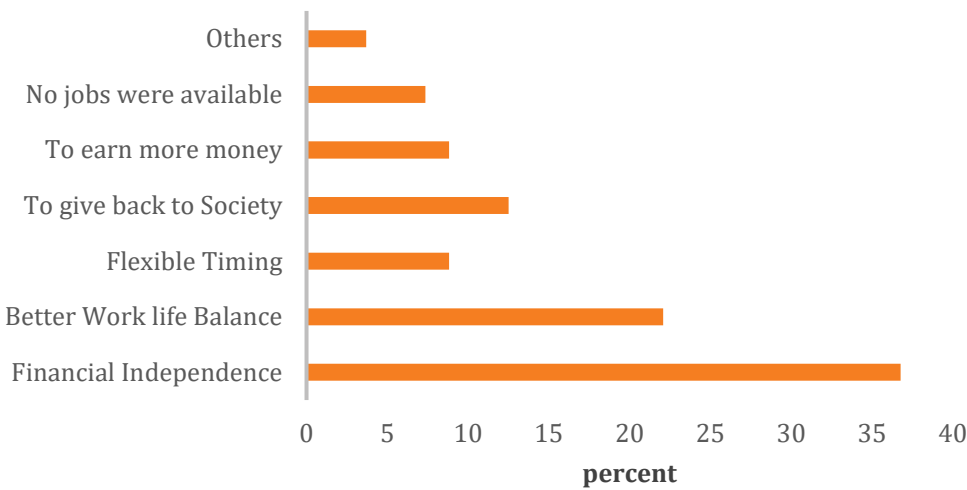
Figure 5: Entrepreneurial Experience



Source: Authors’ computations based on the study’s primary survey data.

- Finally, the most quoted reasons and motivations to start their own business were to get financial independence, better work-life balance due to time flexibility, out of necessity to earn more money to finance their household expenses, lack of job opportunities, and to give back to the community (see Figure 6).

Figure 6: Motivation for Starting a Business



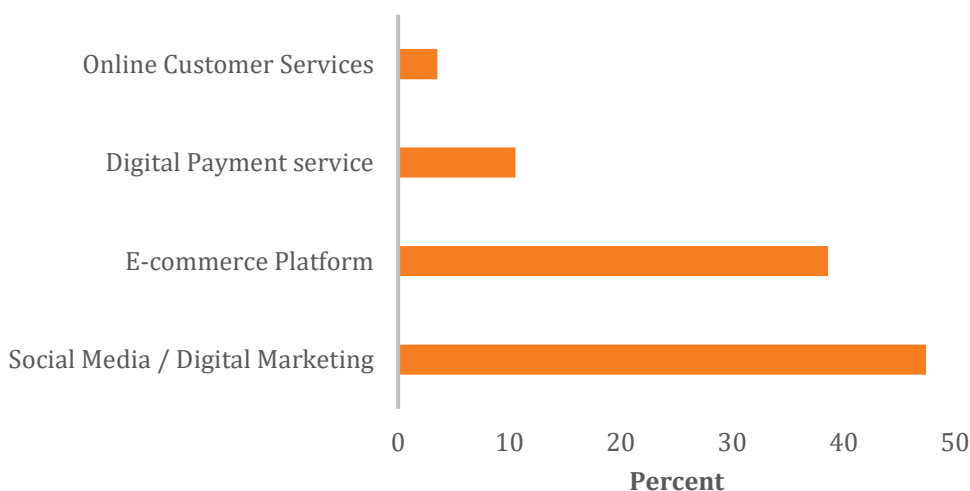
Source: Authors’ computations based on the study’s primary survey data.

This demographic snapshot highlights a relatively educated and experienced group with access to financial and digital resources, reflecting that they have benefited from digital training programmes.

Training Profile of the Participants

Before jumping into the impact of training, it is better to look at the nature of the training they have attended. Fifty per cent of participants had attended more than one training programme, 30% had not attended any training, and the rest had attended only one. Figure 7 below demonstrates that most of the target population had participated in training programmes on social media marketing. At the same time, the rest had taken training on e-commerce platforms, digital payment services, online customer services, and digital marketing.

Figure 7: Nature of Training Programmes



Source: Authors' computations based on the study's primary survey data.

Impact of Digital Training Programme on the Development of Women Entrepreneurship

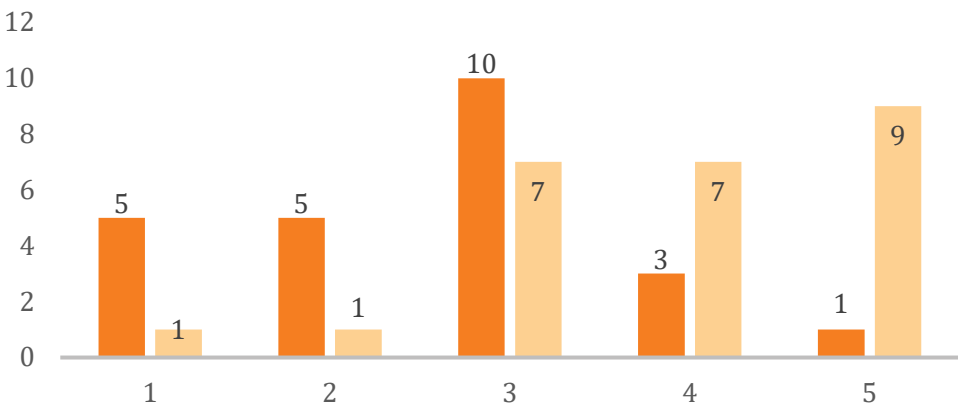
To address the first research question, the study assessed several indicators to measure the impact of the training programmes. The survey explored how digital training programmes impact women entrepreneurs in Pakistan, creating awareness and knowledge of e-commerce platforms and using different social media forums to expand their business activities. What is the impact of attending the digital enablement training on the performance of their business-related indicators?

As mentioned above, this section is further divided into three sub-sections.

Impact on Awareness and Utilisation of Digital Skills

Participants reported significant improvements in their digital skills after attending the training programmes. The participants were asked to rate their digital skills on a scale of 1 to 5 before and after the training, 1 being the lowest and 5 being the highest. It can be seen in the graph below that more participants rate their digital skills higher after one year of attending the training, as shown in Figure 8.

Figure 8: Change in Digital Skills



Source: Authors' computations based on the study's primary survey data.

Following the training, participants reported an enhanced understanding of digital platforms, including WhatsApp Business and Instagram. When asked how confident the participants are in using digital/mobile banking after taking digital skills training, 82% recorded an increase in their confidence, while 18% reported no change. The frequency of applying learned skills varied among the participants.

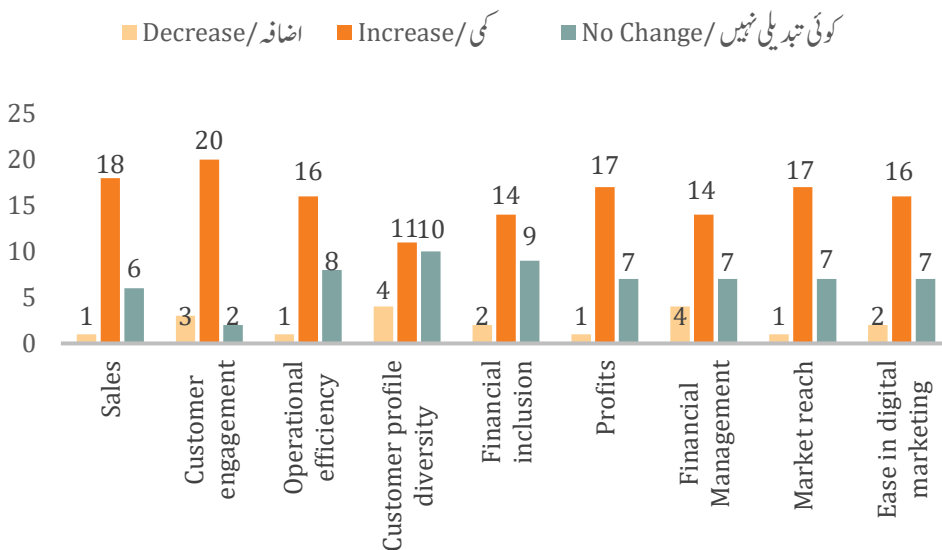
When asked how often they used the skills learned from the training, 77% reported using those skills daily, 21% reported using them sometimes, and 2% said they never used the skills learned from the training. In addition, there is a positive effect on the use and awareness of financial services. Forty-three per cent of the participants started using mobile banking after attending the training in digital business skills, and the rest of them were more comfortable using digital financial services for transactions.



Impact on Business-Related Indicators

The participants were asked if they felt a change in their business performance following the training workshops, and the following data was recorded. There was a significant increase in sales, customer engagement, operational efficiency, customer profile diversity, financial inclusion, profits, financial management, market outreach, and ease in digital marketing, as shown by the blue bar in Figure 9.

Figure 9: Overall Change in Business-Related Indicators



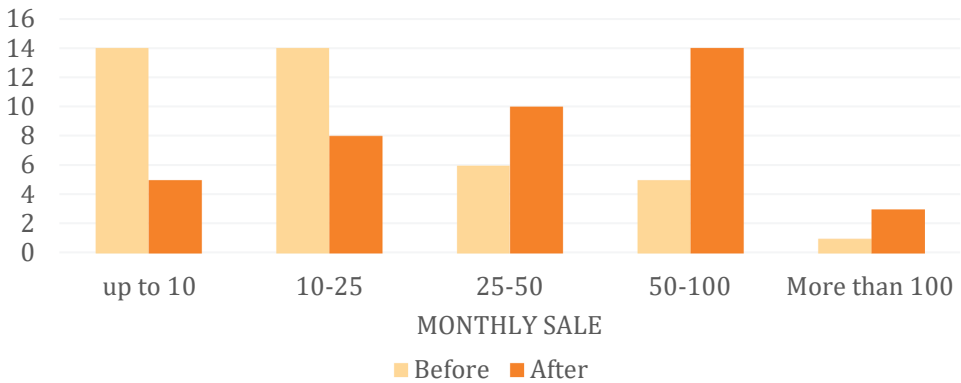
Source: Authors' computations based on the study's primary survey data.

More than 77% of participants reported increased customer engagement due to a significant increase in market outreach (67%) and better social media marketing skills. Moreover, improved operational efficiency (62 %) significantly increased their sales and profits. This is a very encouraging sign that enhancing digital skills in women micro-entrepreneurs can substantially promote their businesses and improve their economic empowerment.

Similarly, the training had a tangible impact on monthly sales, with most participants recording increased revenues post-training. To explore the effect of training on the monthly sales of the participants, Figure 10 below shows that after the training, the monthly sales of most participants were higher than before the training.



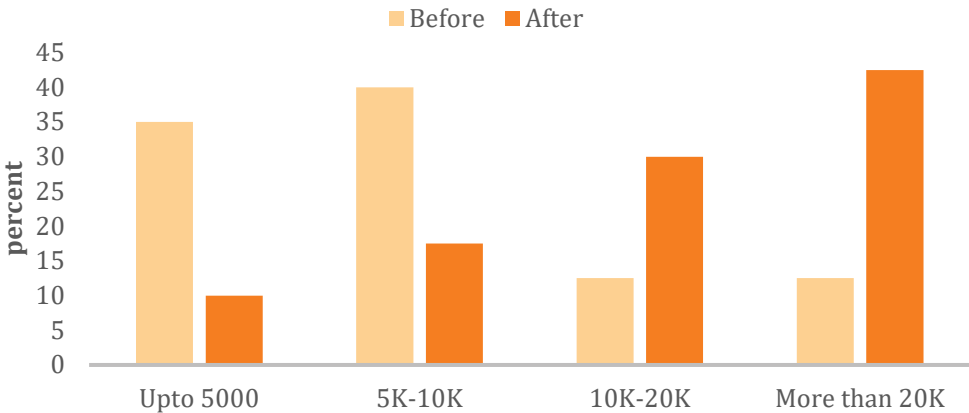
Figure 10: Impact of Training on Monthly Sales



Source: Authors’ computations based on the study’s primary survey data.

Similarly, as mentioned in our research question, we want to know the impact of the training on profit. Our primary data showed upward trends in profit margins as participants transitioned from lower profit brackets to higher ones. When asked how they would quantify their profits after attending the workshop, 72.8% of the participants recorded significant changes, while 27.2% reported no change. To explore the approximate figure for the change in the participants' profit value, the graph below shows that before training, most of the participants were earning lower profits (up to PKR 5,000), as shown in Panel A of Figure 11. After the training, only 10% were earned in this range. Similarly, the share of participants achieving a profit of PKR 20,000 increased significantly from 12% to 42.5% (Figure 11, Panel B).

Figure 11: Profit before and after Attending Training

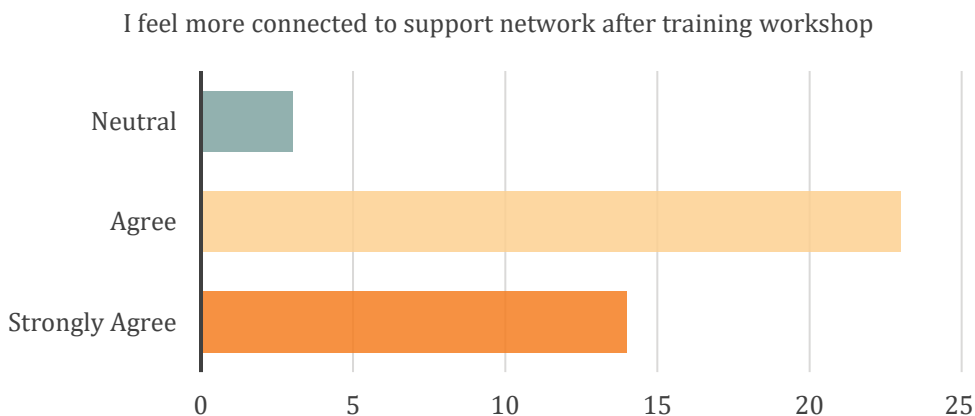


Source: Authors’ computations based on the study’s primary survey data.

Impact on Networking and Social Capital

We also tried to assess the impact of training in creating networking opportunities for these women entrepreneurs, as mentioned in our research question.

Figure 12: Access to Support Network



Source: Authors' computations based on the study's primary survey data.

Networking facilitated during the workshops positively influenced business outcomes. When asked whether networking with other women in the training workshop influenced their business success, 37% agreed that it significantly changed their business success. In comparison, 57.5% said it had a moderate change (see Figure 12). Moreover, 72% of participants expanded into new markets post-training, indicating the training's effectiveness in enabling market diversification through network and social media marketing. In comparison, 20% said they could not access new markets after the training workshop, and 5% were unsure.

Training levels and developing social capital by building support networks, increasing confidence levels (75%), and enhancing participation in family decisions. 55% reported that due to improved financial independence, their say matters in the family decisions, and there is a significant change. In this regard, 30 % reported moderate change, and 15 % reported no change. This suggests that training can be a tool for reducing gender disparity by enhancing the socioeconomic empowerment of women in Pakistan.

Empirical Estimation

To empirically evaluate the relationship between digital enablement training and its impact on the business performance of micro-entrepreneurs, we collected data from 40 women (after one year of attending the training programme- the treatment group) and randomly selected 40 women entrepreneurs who did not participate in this training (control group). Though the sample size remained small, inferences can be drawn based on the regression analysis.

The baseline model for estimation is

$$Profit = \alpha_i + TDAP\ training\ \lambda + X'_i\ \beta + \varepsilon,$$

where profit indicates the business's monthly profit, and it is our dependent variable (alternatively, it is replaced by sales when we use sales per month as our dependent variable). TDAP training indicates the TDAP training dummy (1 if the participant attended that training, 0 otherwise). X'_i is a row vector comprising the other explanatory variables.

We employed an ordered logit model (OLM) to evaluate the relationship between digital enablement training and the profitability of women microentrepreneurs. Profit earned by these microentrepreneurs is our dependent variable and is measured in ordered categories, as mentioned above. This data is self-reported profit brackets, which reflect the ranking but not equally distant intervals. The primary explanatory variable of interest is participation in digital enablement training, a binary indicator capturing whether the entrepreneur received digital skills training by the TDAP or not. Our control variables include the age of the business, time spent on the business, nature of the business, and number of employees. The ordered logit model is suitable here as it estimates the likelihood of women microentrepreneurs being in the high-profit category after attending the training. By estimating the cumulative log odds of being in a particular profit category or below, the model allows us to assess whether digital training is associated with a statistically significant upward shift in profitability among women micro-entrepreneurs.

Table 2 presents the results of an ordered logit regression analysing the effect of training on business performance (profit) using odds ratios. The coefficient for training is statistically significant in all models from 1 to 6. The odds ratios range from 3.397 to 4.569, meaning businesses that received training are 3.4 to 4.6 times more likely to report higher profits than those that did not. This



suggests a substantial positive impact of training on profit. By including various control variables, this positive and significant effect remains, which shows the robustness of our findings.

Table 2: The Effect of Training on Business Performance

Effect of Training on Business Performance (Profit) Odd ratio						
	M1	M2	M3	M4	M5	M6
	b/se	b/se	b/se	b/se	b/se	b/se
Training	3.600***	3.544***	3.703***	4.569***	3.397***	4.250***
	1.528	1.505	1.621	2.116	1.479	1.935
Business age		1.713**	1.531*	1.469	1.545*	1.492*
		0.372	0.348	0.349	0.351	0.349
Time per day			3.684***	3.261***	3.679***	3.166***
			1.194	1.084	1.23	1.086
Employees				1.356*		1.501**
				0.208		0.274
Nature of business					1.444	1.741*
					0.381	0.506
N	80	80	80	80	80	80
F	9.105	9.218	9.899	8.531	7.104	5.682
prob	0	0	0	0	0	0

*Standard errors are reported below the coefficients. *** indicates significance at the 1% level, ** at 5%, and * at the 10% level.*

The coefficient of business age in Model 2 (M2) shows that it has a significant effect, which suggests that older businesses are more likely to report higher profits. In other models (M4 and M6), business age remains significant but with different odds ratios, indicating that this variable has a moderately positive impact. Similarly, time spent on business per day had a significant effect. This suggests that spending more time per day on business activities increases the likelihood of higher profits. The impact on business performance of the number of employees remains inconsistent. Although it is positive, it is not always significant.

The F-statistics are significant in all models, indicating that the regressions have explanatory power—the relevant lower p-values (reflect that models are highly important). Similarly, as a sensitivity analysis, we replaced our dependent variable with sales to evaluate the impact of training on business performance.² Our findings that digital training results in enhanced business sales remained consistent.

Based on these findings, we can conclude that training has a substantial and statistically significant positive effect on business performance (profit and sales). Business age and time spent per day also contribute positively to profit, but their effects are slightly weaker. Employees and the nature of business have mixed effects. Overall, investing in training for micro-entrepreneurs is highly beneficial for business profitability.

8. POLICY RECOMMENDATIONS

This section presents policy recommendations based on our round table discussion and the analysis of the primary survey data.

Primary Research Policy Recommendation

First, we discuss the suggestions that the participants of the training programmes presented, and we can see the overlap and interlinkage of these recommendations by different stakeholders.

These recommendations answer our second research question, in which participants were asked to provide valuable insights for enhancing the effectiveness of future training programmes. Participants proposed the following recommendations to strengthen the effectiveness of digital training programmes further.

The participants recommended focusing on practical, hands-on sessions that simulate real-life scenarios, prioritising practical applications over theoretical or verbal approaches. Accessibility can be enhanced by providing content in Urdu, offering online formats like webinars and videos, and extending training to remote and underprivileged areas. The training sessions should include more practical, real-life scenarios to allow participants to apply digital tools effectively in their businesses.

² Results are available on request.



70.8% of the participants said the training should focus on digital marketing skills (social media apps, etc.) and financial literacy (mobile banking, etc.). At the same time, 25% said it should only focus on digital marketing skills.

One-on-one mentorship programmes, certifications, and dedicated help desks or FAQs were suggested to sustain learning and motivation. Additionally, participant feedback should be gathered to continuously refine and tailor training sessions for a more significant impact and relevance. Interestingly, these suggestions coincide with the suggestions provided by the panel of experts in the roundtable discussion, which are discussed in the following section.

Roundtable Expert Panellist Policy Recommendations

The forum proved highly fruitful in providing invaluable strategies from the learned participants with years of experience in the field. The two entrepreneurs present during the discussion represented the success stories of “what works” in terms of effective strategies. Consequently, not only were invaluable insights gleaned from stakeholders of public and private organisational representatives, but also the entrepreneurs themselves in that forum. We also found a similar suggestion based on the primary survey data analysis, which shows the robustness of our findings.

Some strategies were proposed subtly than others, often intertwined with the challenges discussed. However, all were consequential in their potential impacts. For a concise analysis, these strategies have been divided into three subparts:

- **Training Recommendations:** These suggestions aim to improve training based on stakeholder experience.
- **Policy Recommendations:** These are suggestions that require governmental intervention.
- **Collaboration Recommendations:** These ideas can only be implemented through collaborative efforts.

Training Recommendations

Predictably, considering the title of the roundtable session, “Digital Enablement of Women Microentrepreneurs in Pakistan,” most of the suggestions the panellists shared were training recommendations. These recommendations stemmed from years of experience, enabling the panellists to pinpoint areas for improvement or additions to the training programmes to enhance their impact.

Moving Away from Traditional Methods: Although most participants acknowledged that women microentrepreneurs lacked the time or resources to leave their homes for training, they emphasised that any suggested strategies should be as digital as possible. One proposed solution is speech-based assistance in apps, including speech-based AI chatbots in local languages and curated training videos that can be shared via WhatsApp, allowing women microentrepreneurs to watch them at their convenience.

Training for Influential Male Community Members: This was another unique strategy proposed by the panellists. They believe that men must also be trained to progress in women's entrepreneurship development. This can mean training community leaders, such as religious or local political leaders. The objective is holistic social development that will gradually but steadily pave the way forward for women microentrepreneurs.

Applied Modules: An entrepreneur in the food industry highlighted that, as informative as training sessions are, they often lack applied components. This results in increased knowledge but little practical application of the new skills learned. Therefore, there is a need for training providers to include an applied module in their curricula actively.

Scaling up What Works: A participant proposed that programmes with promising results must be scaled up. She presented the example of an ongoing project between CBS, LUMS, and KCF, “Bridging the Gap: Building Digital Literacy and Mental Resilience. A Workshop for Female Microentrepreneurs,” suggesting that it can be scaled up by attaching one student to one entrepreneur over the year, allowing the entrepreneur access to a personal tutor.

Additional Suggestions: This encompasses all the suggestions made by several participants throughout the discussion. These include the need to integrate personal development training alongside business training for maximum effectiveness. Similarly, there was an acknowledgement of the



increasing dangers of the internet, highlighting the importance of educating women microentrepreneurs about cybersecurity measures. Additionally, the lack of product differentiation among women microentrepreneurs calls for training programmes to emphasise the importance of Unique Selling Points (USPs). Lastly, emphasis on a module on business ethics is also becoming increasingly essential.

Policy Suggestions

While discussing a topic that has significant implications for national social and economic health, it is impossible to do so without discussing the role of the government. Therefore, panellists also discussed policy recommendations, often referring to the government organisation representatives in the Roundtable session, such as SMEDA, TDAP, and NCSW. Nevertheless, the government's efforts in the field prove that these recommendations did not take over the entire conversation. Indeed, the suggestions were sparse.

The policy recommendations shared by the panellists are as follows:

Emphasis on Family Planning: Family planning must be central to all efforts involving women in Pakistan. Given the sociocultural norms of Pakistan, women's entrepreneurship cannot progress in an isolated environment, which makes it necessary to address other factors that heavily influence women's entrepreneurship simultaneously.

Comprehensive Policies: A representative from the Kashf Foundation expressed her concern about the lack of 'spirit' in policies. She explained that efforts towards entrepreneurship seem isolated as 'events' rather than whole programmes. The initiative and effort from the backend are commendable, but the implementation is lacking. Taking the example of device ownership, she discussed how the numeric data was not representative of the actual data because officials are only looking to increase the number of women device owners without putting in place contingencies or follow-ups when these devices are later appropriated by their family members.

Market Readiness Programmes: Another suggestion from the Multan Chamber representative was for market readiness programmes in which women entrepreneurs are supported at every step. Furthermore, she suggested connecting the demand and supply channels by leading women microentrepreneurs to markets where their products are in demand. She gave an example of the similarities between the African and Pakistani markets.



Collaboration Recommendations

An important conclusion from the Roundtable Discussion was the need for collaborative efforts. From the beginning to the end of the conversation, panellists stressed the importance of pooling resources together to move forward as a unit instead of isolated blocks. After all, the goal is shared between all stakeholders: promoting the progress of women microentrepreneurs.

However, collaborative efforts are an ambiguous goal at best. Therefore, participants discussed specific ways through which collaboration could be achieved, as follows:

Unified Platform: The idea of a unified platform where all stakeholders could access relevant materials, such as training resources, job opportunities, success stories, etc., was forwarded by several participants. However, a representative from SMEDA highlighted the difficulty in achieving such a goal due to the web of interconnectivity between several departments and organisations working on different aspects of women's micro-entrepreneurship. She suggested instead that networking with SMEDA be increased for all those who require assistance because of the central role played by SMEDA in the domain of women's entrepreneurship.

Advocacy: The Kashf Foundation representative highlighted the importance of advocacy. She stressed the need for stakeholders to band together to advocate the best possible strategies to help the cause of women microentrepreneurs in Pakistan.

9. CONCLUSION

Based on the analysis of primary survey data and expert panellist discussion, adopting information communication and digital technology plays a significant role in promoting women's entrepreneurship in Pakistan. This will result not only in the socioeconomic empowerment of women but also in the untapped potential of half of the population of Pakistan.

Digital enablement training can help us achieve various sustainable development goals through multiple channels by increasing female labour force participation, developing human capital, empowering women economically and socially, and contributing to the country's economic growth.



Digital enablement of women is particularly useful in Pakistan and its neighbouring countries, given the region's challenging sociocultural and institutional context. In such a scenario, technology and its adoption offer promising potential for women entrepreneurs to grow and scale their businesses.

The findings illustrate that the TDAP training programmes significantly impacted women entrepreneurs by improving their digital skills, boosting confidence, and enhancing key business outcomes. Future programmes should incorporate participant feedback to refine the training approach and ensure inclusivity, accessibility, and practicality. This will significantly impact and sustain business growth for women entrepreneurs across diverse regions and business tiers.



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THE IMPLICATIONS OF THE GENDER GAP IN DIGITAL FINANCIAL LITERACY AND FINANCIAL INCLUSION FOR WOMEN ENTREPRENEURS: A CASE STUDY OF FAISALABAD

Tahira Sadaf¹

ABSTRACT

This study aimed to estimate the degree of financial literacy in men and women in Pakistan, analyse the gender gap in financial literacy and digital financial literacy among entrepreneurs in Faisalabad, evaluate the gender gap in financial inclusion among entrepreneurs in Faisalabad, and assess the effect of digital financial literacy on financial inclusion in female entrepreneurs in Faisalabad. The study used a mixed-method approach. The first objective was addressed using secondary data from the World Bank's Global Findex database, revealing a significant gender gap in financial literacy. Results showed that only 21% of individuals in Pakistan had a bank account, with a mere 13% of women having access to formal banking services, highlighting a substantial gender disparity in financial inclusion. Furthermore, Pakistan ranks among the lowest in account ownership among low-middle-income countries, with a significant gap between men and women. Primary data was collected using a structured questionnaire to address the remaining objectives. Sampling was done in two steps using the Pakistan Social and Living Standards Measurement (PSLM) 2019-20 survey. First, the target district was selected from Punjab based on its high proportion of female entrepreneurs, which was evident from the analysis of PSLM 2019-20. Second, the number of respondents for data collection was selected. Faisalabad district was randomly selected for data collection. The total sample size came out to be 237, in which the number of women was 100 (42%) and the number of men was 137 (around 58%). There was a statistically significant gender gap

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in financial literacy, digital financial literacy, and financial inclusion among entrepreneurs in Punjab. Women had lower levels of financial literacy, digital financial literacy and financial inclusion compared to men. The study revealed that digital financial literacy had a positive impact on financial inclusion for entrepreneurs. The study recommends targeted interventions for female entrepreneurs to promote their financial literacy and digital financial literacy so that they may have better financial inclusion and get financial benefits from formal financial institutions. It can contribute to the economic empowerment of female entrepreneurs in Punjab.

1. INTRODUCTION

This section provides the rationale, scope, objectives, and approach of the study. It provides insights into the concepts of financial literacy and digital financial literacy, with special reference to entrepreneurship.

Financial Literacy

The Organization for Economic Cooperation and Development defines financial literacy as “a combination of awareness, knowledge, skill, attitude and behaviour necessary to make sound financial decisions and ultimately achieve individual financial wellbeing” (OECD, 2022). Financial literacy has several elements, like practices related to saving, credit, earning, financial technology, interest, and protection. Understanding of the concept of financial literacy is subject to occupation and the level of income (Remund, 2010). There is a wide array of definitions of the term “financial literacy”. These definitions generally imply the ability of individuals to make decisions to ensure their financial well-being (Kawamura et al., 2021; Goyal & Kumar, 2021; Klapper & Lusardi, 2020) and financial decisions, both at the individual and firm levels. Initial work on financial literacy dates back to the early 1990s in the USA.

The idea developed later on in various forms, where many studies proposed different measures to gauge financial literacy. For instance, Lusardi & Mitchell (2011) operationalised this concept as interest compounding, inflation, and risk diversification. According to Hussain et al. (2018), financial literacy can be both external and internal. Several studies found in the literature attempt to operationalise instruments to analyse financial literacy (for instance, Lusardi & Mitchell, 2011; OECD, 2011 & 2012; Guest, 2013, and Atkinson & Messy, 2012). Guest (2013) raises questions on the available definitions of the concept of financial literacy, which raises the question about its measurement. This suggests that researchers keep working on the development of new measures for defining financial literacy.

The uncertain economic conditions prevailing internationally have intensified the need to pay attention to the matter of financial literacy. There are various factors reported to be responsible for influencing financial literacy, including the marital status (Brown & Graf, 2013; Grable et al., 2007), the level of education (Grohmann et al., 2015; Agarwalla et al., 2015; Cole & Shastry, 2009; Lusardi & Tufano, 2015), being a business major (Chen & Volpe, 1998; Beal & Delpachitra, 2003), having a high score in mathematics (Agarwal &



Mazumder, 2013), financial socialisation in schools and home (Grohmann et al., 2015; Hira et al., 2013), and financial self-efficacy (Farrell et al., 2016). The effectiveness of the economic policies is important for developing financial institutions and improving financial literacy (Grohmann et al., 2015).

Literature review also reveals the impact of behavioural variables on financial literacy (Shim et al., 2010; Gaurav & Singh, 2012; Agarwal & Mazumder, 2013; Hira et al., 2013; Grohmann et al., 2015). Research done at the global level reveals low levels of financial literacy among individuals (see, for instance, Atkinson & Messy, 2012; Beal & Delpachitra, 2003; Chen & Volpe, 1998; Lusardi & Mitchell, 2007; and Mandell, 2008). This lapse in financial literacy raises concerns among policymakers in different countries (Van Rooij et al., 2011). However, the efforts to address this concern are far weaker than what might be sufficient to address the grave consequences of financial illiteracy. Punjab stands first in the ranking among provinces in terms of literacy rate in Pakistan, and it is perceived that literacy helps to develop financial literacy. Nonetheless, the literature is limited on this aspect, where literacy is either used as a proxy for financial literacy or one of its determinants (Chen & Volpe, 2002; Xu & Zia, 2012). Punjab is suitable to test the proposition of whether literacy leads to financial literacy or not. Thus, the case of Punjab makes this project relevant.

Digital Financial Literacy

To secure an ideal financial status, understanding the complex financial products, having knowledge of financial technology, like crowdfunding, blockchain, electronic payments, and budgeting applications, and grasping the ever-growing financial markets are requisites for the current era. Digital literacy without financial literacy is, however, dangerous if there is a quest to improve financial resilience at the household level (Lyons et al., 2022) and all other levels. The internet revolution has transformed financial literacy into digital financial literacy.

Although financial literacy and digital financial literacy concepts are seemingly similar, there are essential differences in their conceptualisation (Lyons & Kass-Hanna, 2021; Goyal & Kumar, 2021). Digital financial literacy is a combination of knowledge, skills, attitudes, and behaviours necessary for individuals to be aware of and safely use digital financial services and digital technologies with a view to contributing to their financial well-being. It helps people get engaged with digital payment tools. The role of digitalisation and ICTs is found to help reduce the gender gap and improve the living standards

of female entrepreneurs (Hilbert, 2011). However, limited literature is available on the role of digital financial literacy in improving women's financial inclusion, for example, Kofman & Payne (2021) and Azeez & Akhtar (2021). Most of these studies explain the role of financial literacy in improving women's financial inclusion. Given the difference in concepts of financial literacy and digital financial literacy (Lyons & Kass-Hanna, 2021), there is a dire need to study the impact of digital financial literacy among women entrepreneurs on their financial inclusion.

Digital Financial Literacy and Entrepreneurship

Financial literacy aids in calculating household budgets and facilitates entrepreneurs to be more creative while using financial products like credit/debt, budget management, procurement of inputs, production, calculating fixed and variable costs, and inventory usage (Reich & Berman, 2015). It shapes attitude towards spending and saving and helps secure the financial future (Jang et al., 2014). Bire et al. (2019) report that financial literacy is also very useful for financial institutions. Female entrepreneurs face challenges if they lack access to financial resources (Chowdhury et al., 2018), and they are particularly not experts in accessing formal financial institutions (Cumming & Vismara, 2017). Their challenges increase due to not owning property (Abdul-Rahman & Nor, 2017). Evidence is available on the relationship between financial literacy and financial inclusion among female entrepreneurs (Younas & Rafay, 2021; Struckell et al., 2022; Lladós-Masllorens & Ruiz-Dotras, 2022). However, a comprehensive study is required to analyse the importance of financial literacy and digital financial literacy for female entrepreneurs.

Financial Literacy, Financial Inclusion, and Economic Growth

Financial inclusion is the process of accessing financial products by people (Sujlana & Kiran, 2018; Jukan & Softic, 2016; Bire et al., 2019; Grohmann et al., 2018). The concept of financial inclusion can be multifaceted depending on whether it is being defined at the individual level or the organisational level. For instance, at the individual and/or household levels, financial inclusion impacts health, education, and gender balance. At the national level, it affects income and wealth equality, poverty, economic growth, and employment. Financial, as well as digital literacy, are prerequisites for financial inclusion (Lyons et al., 2022), and financial illiteracy has proven to be the main hurdle in achieving financial inclusion across the globe, per the United Nations. Financial inclusion of women and men using financial and digital literacy may



help boost economic growth and access to financial resources. Access to the financial system helps people, especially women, to raise their income and improve their livelihoods.

It was evident during the COVID-19 pandemic that massive development in financial technology helped improve economic activity (Sahay et al., 2020; UNEN Policy Brief, 2023). Despite evidence of the positive relationship between financial literacy and economic development (Bruhn et al., 2013; Gerardi et al., 2010; Lusardi & Mitchell, 2011; Lusardi & Tufano, 2015; Van Rooij et al., 2011), a large proportion of the global population (one forth) remains out of the formal financial system due to being unbanked, particularly women and youngsters (Sahay et al., 2020; Weidenkaff & Witte, 2021). The possession of a bank account is a widely used indicator of financial inclusion. People having bank accounts and using formal financial services have a high level of financial literacy (Klapper & Lusardi, 2020). These excluded individuals are inclined to depend heavily on untrustworthy informal lenders to fulfil their financial requirements, which deprives them of accessing a wide range of formal financial services.

Therefore, it is imperative to educate the masses at all levels, especially in developing countries where the proportion of banked population (63%) is comparatively very low compared to the developed countries (94%) (Sahay et al., 2020). Financial inclusion is important for the global population, especially those residing in developing countries. It aids people in generating income through small investments and facilitates them in paying daily expenditures. Financial inclusion is also crucial for future investment and risk management (Demirguc-Kunt et al., 2018). Many studies support the positive relationship of financial inclusion with entrepreneurship and economic development (Lyons & Kass-Hanna, 2021). These studies show that financial literacy plays a very important role in enhancing financial inclusion, which ultimately leads to economic growth (Amidjono et al., 2016; Bire et al., 2019; Grohmann et al., 2015; Grohmann et al., 2018).

Gender Gap in Financial Literacy and Financial Inclusion

There is evidence from the available literature on the issue of gender disparities in financial literacy in different countries (Chen & Volpe, 2002; Hsu, 2016; Fonseca et al., 2012). Men are equipped with better opportunities for attaining financial literacy than women due to their active involvement in making household financial decisions, whereas women are more occupied with household chores (Hsu, 2016; Fonseca et al., 2012). The gender gap in access to financial services is remarkably pronounced in developing countries

due to financial illiteracy in women (Chen & Volpe, 2002; Hsu, 2016; Fonseca et al., 2012). A large proportion of the global unbanked population is women (Sahay et al., 2020; Weidenkaff & Witte, 2021). Women are lagging behind men in financial and digital literacy as well as financial inclusion (Klapper & Lusardi, 2020) because men are more involved in making financial decisions (Fonseca et al., 2012). Women are not frequently accountable for financial matters until the death of their spouse or divorce (Hsu, 2016; Bucher-Koenen et al., 2012). Chen & Volpe (2002), in a survey on financial literacy, found that women were less willing to learn financial topics compared to the male respondents.

Pakistan is the lowest among low-middle-income countries in terms of owning an account, where only 21% of individuals have a bank account. This figure is even lower for women, where only 13% of women possess a bank account. The gender gap in having an account in the country is quite wide (15%). Pakistan has the second-largest population of unbanked adults (115 million) after China and India. Worldwide, especially in the developing countries, more women than men remain unbanked and Pakistani women are more than half of the unbanked individuals. Labour force participation and financial inclusion are correlated with each other. For instance, in the case of Pakistan, adults who are part of the labour force are roughly twice the number of individuals who have bank accounts than those who do not. Digitalising wage payments may help reduce the proportion of unbanked people to 20% in the case of countries like Pakistan. There is limited evidence available in the literature on digital financial literacy among women entrepreneurs for realising optimistic financial outcomes (Lyons & Kass-Hanna, 2021; Setiawan et al., 2022; Rahayu et al., 2022; Suseno & Abbott, 2021; Aziz & Naima, 2021; Barik & Sharma, 2019).

A very few studies were found on Pakistan that focus on the gender gap in financial literacy, digital financial literacy, and financial inclusion, particularly on female entrepreneurs. Publications (not necessarily research publications) are issued by various banks of Pakistan periodically. For instance, ZTBL (2023) examined the past and current trends of financial inclusion in Pakistan and confirmed the correlation between financial exclusion and poverty in developing countries, which is also evident in the available literature. According to this study, there have been many hindrances to attaining financial inclusion in Pakistan. The State Bank of Pakistan, along with all commercial banks, keeps launching different products to increase financial inclusion and promote inclusive economic growth.



Except for a few studies, such as ZTBL (2023), Noor et al. (2022), Raza et al. (2023), and Akhter et al. 2023, the literature on digital financial literacy and its linkages with financial inclusion is even more limited. Realising this gap, this study studies the gender gap in financial literacy and digital financial literacy in Punjab as well as in Pakistan. In the case of Punjab (using primary data), special focus is on gender differences in financial literacy, digital financial literacy, and their implications for the financial inclusion of female entrepreneurs in particular. This study would help policymakers, educational institutions and other stakeholders to customise financial literacy improvement programmes for women entrepreneurs and improve financial inclusion among female entrepreneurs.

Objectives

This study has the following objectives:

1. To estimate the degree of financial literacy in men and women in Pakistan.
2. To analyse the gender gap in financial literacy and digital financial literacy among entrepreneurs in Faisalabad.
3. To evaluate the gender gap in financial inclusion among entrepreneurs in Faisalabad.
4. To assess the effect of digital financial literacy on financial inclusion in female entrepreneurs in Faisalabad.
5. To recommend practical policy measures based on this research.

Relevance to Public Policy

Pakistan rank lowest among low-middle-income countries in terms of adults owning an account. Merely 21% of individuals and only 13% of women possess a bank account. Moreover, the gender gap is quite wide too at 15%. Pakistan has the second-largest population of unbanked adults, where women make up more than half of them. In the case of Pakistan, limited studies were found on the gender gap in digital financial literacy and financial inclusion. Consequently, this study analyses the gender gap in financial literacy and digital financial literacy in Pakistan and Punjab. This study would help policymakers, educational institutions, and other stakeholders to customise financial literacy improvement programmes for women entrepreneurs and improve financial inclusion among female entrepreneurs. This study would also aid in the development of targeted policy recommendations for

policymakers, educational and financial institutions, and NGOs to promote gender equality in financial inclusion by enhancing digital financial literacy among women entrepreneurs. It would aid stakeholders in designing policy for bridging the gender gap in accessing financial resources and opportunities, fostering inclusive economic development through improving the bargaining power of female entrepreneurs.

2. RESEARCH METHODOLOGY

The following research design was followed to conduct the study. The study area was Faisalabad.

Data Sources

This study utilised data from both primary and secondary sources.

Secondary Sources of Data

Secondary sources were used for two purposes. The first purpose was to address the first objective, i.e, to estimate the degree of financial literacy in men and women in Pakistan. The required information was retrieved from the website of the World Bank's Global Findex database. The second source was the PSLM 2019–20. It was used to draw the sample size for addressing objectives two to four.

The Global Findex is the world's most extensive and detailed repository of financial inclusion data (Demirgüç-Kunt et al. 2022). This database provides information on adult financial behaviours, including account ownership, saving, borrowing, payment transactions, risk management strategies, and reasons for not having an account, among other things. Since 2011, this database has been updated every three years. The latest version is the 2021 edition, which provides information on 128,000 adults belonging to different income groups of the world from 123 countries.

Primary Source of Data

A survey was being conducted using a structured questionnaire that contained questions on financial literacy, digital financial literacy, and financial inclusion.

Sampling

Since this study focuses on female entrepreneurs, the sampling procedure followed the multistage sampling techniques involving two steps using the PSLM 2019-20. In the first step, the target district was selected from Punjab and in the second step, the number of respondents for data collection was selected.

District Selection

Section E of the PSLM 2019-20 deals with variables on “Employment and Income of age group 10 years or older.” In a question (E-14), the respondents were asked about their employment status. The question and response categories are reproduced in Table 1.

Table 1: Question on Employment Status in PSLM and Response Categories

Question (E-14)	Responses/Categories								
	1	2	3	4	5	6	7	8	9
What was the employment status?	Employer, employing <10 persons	Employer, employing ≥10 persons	Self-employed - non-agri	Paid employee	Contributing family worker	Own cultivator	Share cropper	Contract cultivator	Livestock (only)

Source: GOP (2020).

Individuals in all the categories, except categories 4 (paid employee) and 5 (contributing family worker), were treated as entrepreneurs in this study, see, for instance, Sultana et al. (2020) and Ahsan et al. (2021). However, a few studies have excluded categories 5-9 from the category of entrepreneurship on account of including these in the category of “farming.” They have considered only employers in categories 1 and 2, and non-agriculture self-employed individuals (Category 3) as entrepreneurs, following PSLM, 2019-20² and the definitions adopted by Shair et al. (2024). Since the target

² Employer: A person, who has employed one or more persons, on continuous basis, during the reference period, is defined as employer. He may have enterprise by himself or with one or more partners. Self-employed: A person who during the reference period performed some work for profit or family gain, in cash or in kind on his/ her own economic enterprise, shop, profession or trade where the remuneration is directly dependent upon the profits, or the potential profits, derived from the goods and services produced. Self-employed persons do not get assistance from anyone i.e. hires no services of paid employees. However, he/she may utilize the services of unpaid family workers (GOP, 2020).

area of this study was Punjab, the responses of females from other provinces were filtered out. Based on the replies of female respondents, Punjab districts were sorted in descending order according to the number of female entrepreneurs in each district. The ordering ranked Lahore and Faisalabad first and second, respectively, in terms of the number of female entrepreneurs. Lahore had 1,004,231 female entrepreneurs, while Faisalabad had 420,399 (Table 2).

However, district Faisalabad was selected randomly out of the top 12 districts in Punjab, ranked according to the proportion of female entrepreneurs of the total employed females. In Faisalabad, 25% of the total employed females of the district were entrepreneurs according to the definition used in this study. Faisalabad is the second largest city in Punjab in terms of population, and is situated in the centre of the province. It is considered the hub of business activities, which is evident from its epithet, “the Manchester of Pakistan.” Faisalabad was selected as the target district due to its high proportion of female entrepreneurs, economic significance, diverse entrepreneurial base, and access to financial services. With 451,466 female entrepreneurs, Faisalabad ranked second in Punjab, making it a representative district for studying financial inclusion trends. The district's well-developed financial infrastructure, research feasibility, and evidence based on the PSLM 2019-20 further supported its selection.

Table 2: Proportion of Female Entrepreneurs in the Districts of Punjab

A	B	C	D	E	F = C+D+E	G	H = F/ G*100	I
Rank (Based on Column H)	District	Employer (Employing < 10 Employees)	Employer (Employing ≥ 10 Employees)	Self-employed (Non-Agriculture)	Female Entrepreneurs (1+2+3)	Total Employed Females in the District (1+2+3+... +9) ³	Female Entrepreneurs Out of Total Employed Females	Total Females (PSLM)
1	Lahore	97,526	98,652	808,053	100,4231 (Rank 1)	2,892,187	34.722	8,061,189
2	Gujranwala	49,620	15,059	267,855	332,534	104,0397	31.962	3,061,461
3	Mianwali	942	108	86,186	87,236	287,661	30.326	922,511
4	Multan	6,818	1,046	188,594	196,458	651,045	30.176	1,784,959
5	Bahawalpur	0	0	3,732	3,732	12,709	29.365	30,284
6	Gujrat	9,695	455	121,079	131,229	453,325	28.948	1,572,900
7	Nankana Sahib	2,270	1,475	26,473	30,218	109,327	27.640	311,225
8	Sheikhupura	6,410	5,521	84,506	96,437	363,451	26.534	956,977
9	Sargodha	2,762	0	85,306	88,068	339,404	25.948	1,077,073
10	Khanewal	4,404	2,607	152,057	159,068	621,909	25.577	1,855,940
11	Kasur	6,239	12,782	164,173	183,194	739,499	24.77	765,574
12	Faisalabad	25,042	6,025	420,399	451,466 (Rank 2)	183,5170	24.601	1,959,710

³ Code 4= Paid employee, Code 5=Contributing family worker, Code 6= Own cultivator, Code 7=Share-cropper, Code 8=Contract cultivator, Code 9= Live stock (only) (GOP, 2020).



A	B	C	D	E	F=C+D+E	G	H=F/ G*100	I
Rank (Based on Col- umn H)	District	Employer (Employ- ing < 10 Emplay- ees)	Employer (Employing ≥ 10 Em- ployees)	Self-em- ployed (Non-Ag- riculture)	Female Entrepre- neurs (1+2+3)	Total Em- ployed Fe- males in the District (1+2+3+... +9) ³	Female Entrepre- neurs Out of Total Employed Females	Total Fe- males (PSLM)
13	Jehlum	1,251	0	52,131	53,382	217,071	24.592	4,828,343
14	Sahiwal	4,104	681	61,378	66,163	272,357	24.293	720,434
15	Sialkot	9,76	316	73,203	74,495	323,627	23.0188	661,428
16	Narowal	2,68	0	29,336	29,604	129,919	22.787	1,020,588
17	Mandi Bahauddin	7,859	408	67,551	75,818	335,101	22.625	475,410
18	Bahawalnagar	227	0	4,012	4,239	19,358	21.898	1,030,807
19	Hafizabad	2,332	177	44,033	46,542	213,431	21.806	45,415
20	Chakwal	2,350	167	62,979	65,496	300,903	21.766	615,647
21	Chiniot	3,590	3,480	63,826	70,896	328,319	21.594	847,040
22	Okara	1,696	0	70,755	72,451	341,407	21.221	829,007
23	Vehari	346	0	63,857	64,203	306,158	20.970	880,014
24	Khushab	591	169	47,821	48,581	236,169	20.570	4,833,7121
25	T.T. Singh	1,507	0	50,245	51,752	253,161	20.442	773,322
26	Jhang	6,613	4,598	159,433	170,644	856,411	19.925	554,274
27	Lodhran	5,390	476	68,786	74,652	382,778	19.503	1,695,974
28	Attock	157	0	1,689	1,846	9,603	19.223	960,050
29	Muzaffar Garh	204	374	75,376	75,954	422,995	17.956	27,738
30	Pakpattan	1,170	364	37,991	39,525	228,990	17.260	1,099,217
31	D. G. Khan	4,451	0	113,834	118,285	685,797	17.248	486,734
32	Layyah	2,954	591	95,551	99,096	621,198	15.952	1,633,784
33	Rahim YK	1,302	2,033	96,518	99,853	682,568	14.629	1,258,533
34	Rajanpur	0	0	36,162	36,162	254,101	14.231	1,409,112
36	Bhakhar	382	0	44,616	44,998	319,700	14.075	529,227
	Total	28,5312	159,171	406,3019	4,507,502	17,983,310	25.065	839,651

Source: GOP (2020).

Sample Size Selection

For the selection of respondents, using PSLM 2019-20, the proportion of female entrepreneurs out of the total employed females was calculated for each district. Faisalabad, which turned out to be 25%. Based on Pakistan's Population Census 2017, the female proportion was calculated for the district and using that proportion, the female population of the district was calculated, which turned out to be 49% (GOP, 2017). Multiplying this figure by the proportion of employed females gave us the total number of employed females (which was found using PSLM data) for the year 2023. Finally, multiplying the proportion of entrepreneurs out of the total employed females by the total employed females in 2023 gave us the number of entrepreneurs for the year 2023 in Faisalabad district. Using Yamane's (1973) formula of sampling as given below, we reached a figure of 100 female respondents for the survey.

$$\text{No of Respondents} = N / (1 + N \varepsilon^2) \quad 2.1$$

where ε (chance of error) = 10%

Table 3: Sampling of Female Respondents in the District of Faisalabad

S. No.	Variable	Figure	Source
1	Total females	1,959,710	PSLM 2019-20
2	Employed females	1,835,170	
3	Female entrepreneur	451,466	
4	Employed females out of the total females (%)	93.645	(row2/row1)*100
5	Female entrepreneurs in the total employed (%)	25	(row3/row2)*100
6	Female population (2023)	3,842,684	Population Census 2023
7	Total employed females (2023)	3,598,481	row 4*row 6
8	Female entrepreneurs (2023)	885,262	N= row 5*row 7
9	Sample size	99.99≈100.00	No of respondents = $N / (1 + N e^2)$, where, chance of error (e)=1%
10		19.999≈20.00	No of respondents = $N / (1 + N e^2)$ where e=5%

Source: GOP (2020).

Table 4: Socioeconomic Attributes of Female Entrepreneurs in the District of Faisalabad

Attribute	Minimum	Average	Maximum
Age	10	39	87
Education	0	9	28

Source: GOP (2020).

Table 5 show the distribution of female entrepreneurs in the Faisalabad district according to the nature of activities they were engaged in. The data shows that they participated in a variety of enterprises. The top five activities were retail sales in non-specialised stores with food (11.6%), retail sales of food in specialised stores (10.9%), manufacture of wearing apparel (10.7%), retail sales of textiles in specialised stores (6.1%), and retail sales of clothing, footwear, and leather articles (2.8%).



Table 5: Nature of Work Done by Female Entrepreneurs in the Faisalabad District

S. No.	Nature of work done	No.	%	Cumulative (%)
1	Retail sales in non-specialised stores with food	51,186	11.6	11.6
2	Retail sale of food in specialised stores	48,284	10.9	22.5
3	Manufacture of wearing apparel, except fur apparel	47,233	10.7	33.2
4	Retail sale of textiles in specialised stores	26,914	6.1	39.3
5	Retail sale of clothing, footwear and leather articles in specialised stores	12,178	2.8	42.1
6	Other retail sales not in stores, stalls, or markets	12,147	2.7	44.8
7	Hairdressing and other beauty treatments	10,901	2.5	47.3
8	Restaurants and mobile food service activities	10,863	2.5	49.8
9	Urban and suburban passenger land transport	10,823	2.4	52.2
10	Freight transport by road	9,806	2.2	54.4
11	Retail sales via stalls and markets	9,089	2.1	56.5
12	Construction of buildings	9,027	2.0	58.5
13	Real estate activities on a fee or contract basis	8,978	2.0	60.5
14	Maintenance and repair of motor vehicles	8,549	1.9	62.4
15	Repair of electrical equipment	7,986	1.8	64.2
16	Manufacture of other textiles n.e.c.	7,116	1.6	65.8
17	Sale, maintenance & repair of motorcycles & related parts & accessories	5,337	1.2	67
18	Retail sales of electrical appliances, furniture, & other household articles in spec	5,193	1.2	68.2
19	Manufacture of structural metal products	4,919	1.1	69.3
20	Manufacture of builders' carpentry and joinery	4,179	0.9	70.2

Source: Author's calculations.

Selection of respondents

According to the Economic Census of Pakistan 2005, there were 3.2 million SMEs in Pakistan during 2001-20025 (Khalil, 2022). According to SMEDA, this number has increased to more than 5 million (SBP, 2022). However, it is difficult to find a mechanism to find details of these SMEs for respondent selection. A comprehensive sampling framework for choosing respondents (both male and female) entrepreneurs in Pakistan is not readily available. The sample size was estimated to be between 20 and 100 in the case of female respondents. For finding the gender gap, an equal number of male respondents was also required. Thus, for the selection of respondents, random sampling could only be followed for the lists of SMEs (sampling



framework) received from the Faisalabad Chamber of Commerce and Industries and the Faisalabad Women Chamber of Commerce and Industries. To get these lists, we held meetings with their respective officials and registered entrepreneurs. The lists provided by them included both members of the chambers as well as trainees (non-members).

The list of female entrepreneurs that was provided to us contained 247 women entrepreneurs. Our team tried to contact them telephonically and through email, but very few replied. Our project team visited 35 women entrepreneurs, but 50% of them refused to respond. Resultantly, 15 entrepreneurs were contacted for pre-testing of the questionnaire. Their feedback helped in refining the initial draft of the questionnaire. Literature supports using convenience sampling and snowball sampling for this purpose (Ackah & Vuvor, 2011; Adeyemi, 2012; Bhardwaj & Sushil, 2012; Bondinuba, 2012; Mubeen et al., 2019; Zubair & Khan, 2021; Shahid et al., 2022). Most of the researchers have utilised the snowball sampling approach (see, for example, Sharma et al., 2007; Osman et al., 2010; Chander & Arora, 2013; Kaushik, 2013; Zafar & Khan, 2013; Jafary & Aslam, 2019; Kemal, 2023, among others). In addition, given the difficulty faced in finding the exact sampling framework, it was decided to reach respondents using the snowballing technique. The respondents who were interviewed at the pre-testing stage helped in providing the names and addresses of other entrepreneurs who later became part of the survey. Additionally, the survey team visited different exhibitions and different localities of the district in order to reach a maximum number of male and female entrepreneurs.

Questionnaire Development

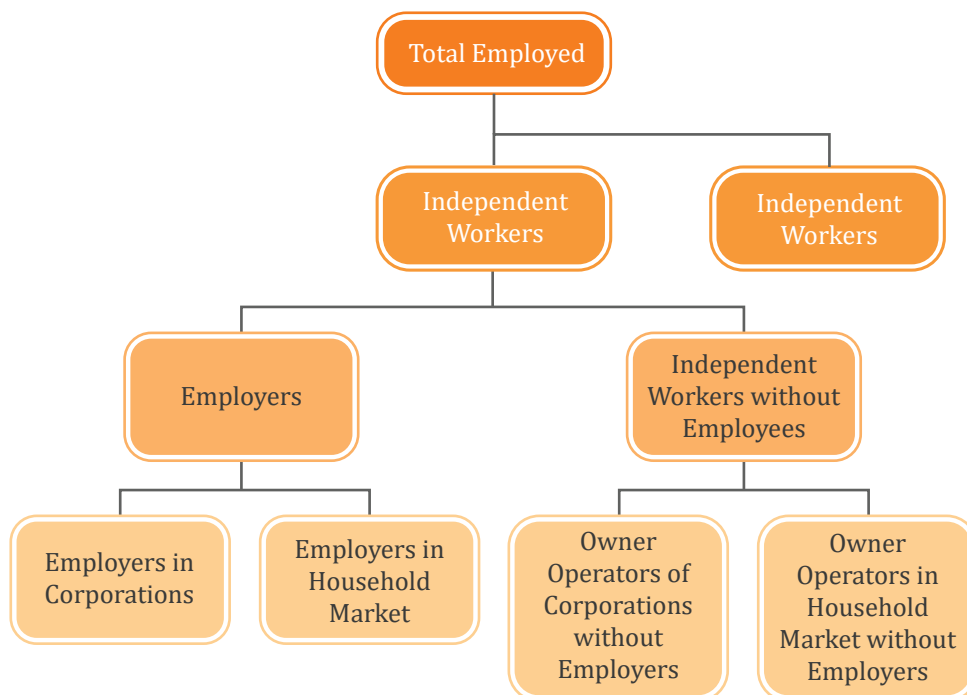
For the development of the questionnaire, it was important to define an entrepreneur and an enterprise first.

What is meant by Entrepreneurs and Enterprise?

An entrepreneur is defined as "a person who creates, organises, and manages a business or enterprise with the aim of earning a profit, often taking on financial risk in the process" (ILO, 2018).

Self-employment is another term used to define entrepreneurship, which includes all individuals who are employers, own-account workers, members of producers' cooperatives, and contributing family workers (ILO, 2018). Entrepreneurs initiate, manage, and finance businesses, making crucial decisions.

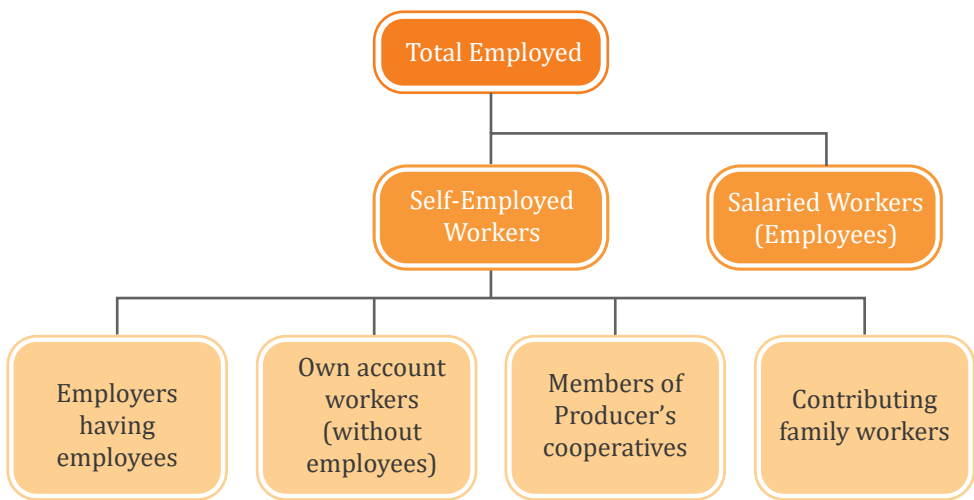
*Figure 1: International Classifications of Status in Employment:
ILOSTAT/ICSE-18-A*



Source: ILO (2018, 2022, 2023, 2024).

International Classifications of Status in Employment-18 (ICSE-18) classifies workers based on two criteria, namely, the type of authority (ICSE-18-A) and the type of economic risk (ICSE-18-R) that a worker is exposed to. The International Classification of Status at Work (ICSaW-18) expands on ICSE-18 by including not only jobs, but all work activities not considered to be in employment with 20 mutually exclusive categories (ILO, 2023). ICSE-18-A (Figure 1), which categorises the status of employment into 10 categories, whereas previously, ICSE-93 used to categorise it into 6 categories (Figure 2).

Figure 2: International Classification of Employment: ICSE-93



Source: ILO (2018, 2022, 2023, 2024).

The classification contains five categories that can be organised into a single hierarchy, plus an additional category for workers not classifiable by status. ICSE-93 differentiates between the status in employment (total employed) between two categories, namely, salaried workers/employees and self-employed workers. The second category is further differentiated into three categories: self-employed workers/employers having employees; self-employed workers without employees, called own-account workers; and members of producers' cooperatives and contributing family workers (also known as unpaid family workers). Contributing family workers do not fall under the definition of women entrepreneurs; rather, they are considered unpaid family helpers (ILO, 2022). Family workers assist family members without financial autonomy or decision-making power (Weidenkaff & Witte, 2021).

ICSE distinguishes contributing family workers from entrepreneurs. Those declaring themselves as contributing family workers are not required to be added to the statistics without exploring their status with further relevant questions. ICSE-93 presents the former statistical standard, but it is still the most widely used by national statistical systems in the production of labour statistics. Section E of PSLM 2019-20 deals with variables on “Employment and Income of age group 10 years or older”. In the E-14, the respondents were asked “What was the employment Status?”, while the response categories included “1 = employer, employing less than 10 persons; 2 = employer,



employing 10 or more persons; 3 = self-employed non-agri; 4 = paid employee; 5 = contributing family worker; 6 = own cultivator; 7 = sharecropper; 8 = contract cultivator; and 9=livestock (only).

According to the Economic Census of Pakistan 2005, there were 3.2 million SMEs present in Pakistan during 2001-2005 (Khalil, 2022), which constituted nearly 90% of all private businesses and employed almost 78% of the non-agricultural labour force (Manzoor et al., 2021). According to SMEDA, the number has increased to more than 5 million. This sector contributes around 40% to the GDP of Pakistan and 25% to overall exports (SBP, 2022). However, SMEs face more severe financing constraints than large firms, especially in lower-income environments, per the World Bank Enterprise Survey (World Bank, 2024b). SMEs are constrained in lower-income settings as compared to large enterprises. In the case of Pakistan, 49.2% of small-sized (5-19 employees) and 33.8% of medium-sized (20-99 employees) firms reported to be credit constrained, more than that of large-sized (100+ employees) firms, where 25.6% of large-sized firms reported to be credit constrained. Ironically, firms using banks to finance investment are very low, particularly in the case of small- and medium-sized firms, with percentages of zero and 0.9, respectively. In the case of large-sized firms, 30.2% of firms use banks for financing investment. The literature suggests a lack of financial education to be a relevant constraint in this scenario, where small business owners suffer the most due to the potential difficulty of managing firms' finances efficiently (World Bank, 2010; Bruhn & Zia, 2013). The support of a functional financial system where savings, credit, and risk management products are available to enterprises serves a vital purpose. In Pakistan, financial products, such as bank credit, are being used predominantly by larger enterprises, accounting for 65% of all bank loans (ZTBL, 2023). Thus, micro, small, and medium enterprises face larger constraints in accessing formal sources of finance (Berger & Udell, 1998; Obwona & Mugume, 2001; Beck et al., 2003; Cabral & Mata, 2003; Kasekende, 2003; Cassar, 2004; Galindo & Micco, 2005; Beck & Demirguc-Kunt, 2006; Galindo & Micco, 2007; Hallward-Driemeier & Aterido, 2009; Huyghebaert & Van de Gucht, 2007; Ishengoma & Kappel, 2007; Aterido et al., 2011; Olawale & Garwe, 2010; Turyahikayo, 2015; Lakuma et al., 2016; Lakuma et al., 2019). On the basis of these facts and figures, it was decided to include micro, small, and medium enterprises in this study.

The SME definitions applied in different countries are based upon various criteria such as the number of employees, value of assets, sales, volume of output, and turnover (Cunningham & Rowley, 2008). These definitions vary from country to country and also within countries (Dar et al., 2017). In

Pakistan there are different definitions of SMEs with different criteria, according to different sources, such as the SME Bank, SMEDA, SME Policy 2021, Pakistan Bureau of Statistics (PBS), State Bank of Pakistan, Companies Ordinance 2015, and Securities and Exchange Commission of Pakistan (SECP).

Table 6: Micro, Small and Medium Enterprises in Pakistan

Source	Criterion	Medium Enterprise	Small Enterprise	Medium Enterprise	Startup
SME Policy 2021	Annual Turnover	...	Up to PKR 150 million	PKR 150 – 800 million	Age up to 5 years (SE & ME)
SBP (2022)	Annual Turnover	...	Same as above	Same as above	...
	Number of employees		Up to 50 million	51-100 (trading) 51-250 (Manufacturing & services)	
	Type of business				
SMEDA (Older version)	No. of employees Productive assets	1 to 9 Up to PKR 2 million	10-35 PKR 2-20 million	39-99 PKR 20-40 million	...
SME Bank	Total Assets		<PKR100 million	Over PKR 100 million	...
ADB (2023) GOP (2021) GOP (2020)		Own account workers and employers			...
Kureshi et al. (2009) National SME Policy 2007	Annual Capital Annual Sales No. of Employees		...		-
Wadood & Shamsuddin (2012) ILO, 2024	No of Employees	5-9	10-49	50-99	
Dar et al. (2017)	No. of Employees		Between 5-24	Between 25-99	
	Productive Assets		PKR 0.5-10m	PKR 10-40 m	
	Total Assets		<50 m	Over PKR 50m	



According to the Government of Pakistan, entrepreneurs are defined as those who “own and operate a business with 1-9 employees (small-scale entrepreneurs);” “own and operate a business with 10 or more employees (large-scale entrepreneurs);” and “work for themselves, without hiring any employees (self-employed)” (GOP, 2020).

Pakistan Labour Force Survey provides gender-disaggregated data on: own-account workers (i.e. self-employed workers), who are owner-operators without employees, who operate an enterprise for profit alone, with one or more partners, or contributing family workers. They do not employ any person to work in the enterprise regularly as an employee. Employers who own the economic unit in which they work and control its activities on their own or in partnership with others (including temporarily but excluding their partners and family helpers), and in this capacity, employ one or more persons to work as employees regularly (ADB, 2023).

According to the SME Policy of 2021, enterprises can be placed into three categories based on annual sales turnover and age of the enterprise. According to this categorisation, small enterprises are those establishments that have a turnover of up to PKR 150 million. Medium enterprises, on the other hand, are those that have a turnover of above PKR 150 million up to PKR 800 million. Finally, startups are small or medium if their age is up to 5 years.

The State Bank of Pakistan, in addition to annual turnover, considers the number of employees as a criterion for distinguishing between small and medium enterprises. An enterprise is classified as small if it has up to 50 employees. Medium enterprises are further divided into two categories based on their activities: those engaged in manufacturing and services are considered medium if they employ 51 to 250 workers, while those engaged in trading are considered medium if they employ 51 to 100 workers. The State Bank of Pakistan has clarified that if an enterprise qualifies as small under one criterion but medium under the other, it will be classified as a medium enterprise. However, if an enterprise meets one medium-enterprise criterion but exceeds the other, it will be classified as a commercial entity. The number of employees may include contract workers. However, if an enterprise is a public entity, it will not be considered an enterprise for the purpose of defining medium enterprises.

Linking Literature with the Questionnaire

Based on the review of the literature, Tables 7 to 9 present a comprehensive description of the core variables of this study, namely financial inclusion, financial literacy, and digital financial literacy. The last column in these three tables includes the codes of questions included in the questionnaire.

Table 7: List of Variables on Financial Inclusion

Category Variable		Description	Source	Questions
Access to Financial Services	Account Holding	Having an account with a formal financial institution (% , age 15+)	World Bank (2020), Demirgüç-Kunt et al., (2022)	FIN3
		Dummy variable – 1 if more than 50% of the account holders are female, 0 otherwise	Hasan et al. (2023), Demirgüç-Kunt et al. (2022)	FIN9
		Having own bank account or utilising someone else’s bank account	Kamble et al. (2024)	FI2A
		Account ownership	Babajić et al. (2018)	DFL-1
		Account ownership: proportion of the population that has an account with a formal financial institution (bank, formal financial institution, mobile money accounts)		FIN4A FIN4-1
		Holds a payment product (prepaid cards, current accounts, etc.) – binary variable	OECD (2022)	FIN4-1
		Have a debit card	Kamble et al. (2024)	FIN5
		Holds a credit product, identifies credit products across country-level data, such as mortgages, credit cards, microloans, etc. – binary variable: takes the value of 1 if any credit product is held, otherwise 0	OECD (2022)	FIN7
		Have a credit card	Kamble et al. 2024	FIN7
		Credit card ownership: binary variable denoting whether a woman entrepreneur owns a credit card, with a value of 1 if more than 50% of women account holders own a credit card, 0 otherwise	Hasan et al. (2023), Demirgüç-Kunt et al. (2022)	FIN7



Category Variable		Description	Source	Questions
		The recent financial product choice identifies individuals who have made at least one product choice (binary variable)	OECD (2022)	FIN4-1 FIN15
Access to Financial Services	Access to Financial Service Providers (Supply Side)	Easily accessible road to the nearest bank The nearest bank is < 5km from my home Takes < 20 minutes to reach the nearest bank The fare to reach the bank is appropriate for me Takes < 25 minutes to easily reach the ATM	Noor et al. (2022)	FIN12A FIN12B FIN12C
		There is a usable access road leading to the nearest formal financial institution. The nearest bank is < 5 km from my home I live within 1km of an ATM that I can easily visit to access my account There is a usable access road leading to the nearest formal financial institution	Mindra et al. (2017)	FIN12D FIN12E
		Financial services = 1 if respondent has access to savings/money/transfers/ insurance/ investment/loans through banks	Kamble et al. (2024)	
Usage to Financial Services	Account Usage	Used a debit card Paid credit card balances in full Made a deposit into the account Withdrew from the account Used the account to store money	Didenko et al. 2023, Demirgüç-Kunt et al. (2022)	FIN5A FIN6
		Used the account to withdraw money Used the account to receive/send remittances	Noor et al., (2022)	FIN21
		Used the account during the past 12 months	Babajić et al. (2018)	FIN21
		Used a debit card during the last 12 months	Babajić et al. (2018)	FIN5A
		Used a debit card in the last year		
		Used a credit card during the last 12 months	Babajić et al. (2018)	FIN7A



Category Variable		Description	Source	Questions
Usage to Financial Services	Savings	Saved at a formal financial institution (usage proxy)		FIN14A
		Saved in the past year	Didenko et al. 2023, Demirgüç-Kunt et al. (2022)	FIN13
		Used the account to save for future expenses	Noor et al., (2022)	FIN14
		Savings = 1 if respondent reported having savings with at least one of the following: bank, microfinance institution, post office, mobile money, savings and loan groups or other formal financial institutions.	Kamble et al. (2024)	FIN14A1
		I have used a savings account to save for future expenses	Mindra et al. (2017)	FIN14A
	Borrowings	Binary variable indicating whether a woman entrepreneur has accessed credit from a formal financial institution in the past year, with a value of 1 if > 50% of women account holders have borrowed, 0 otherwise	Hasan et al. (2023), Demirgüç-Kunt et al. (2022)	
		Borrowed in the past year	Didenko et al. (2023), Demirgüç-Kunt et al. (2022)	FIN15
		Having a loan through at least one of the following: bank, microfinance institutions, post office, mobile money, savings and loan groups or other formal financial institutions.	Kamble et al. (2024)	FIN16A
		Main source of emergency funds in 30 days Difficulty of emergency funds in 30 days	Didenko et al. (2023), Demirgüç-Kunt et al. (2022)	FIN17
		Relying on family and friends identifies people who turn to family or friends to save money for them, or to help them to make ends meet (binary variable)	OECD (2022)	FIN16 FIN16B
	Insurances	1 if the respondent reported having at least one of these insurances: medical, life, vehicle, agriculture, house, unemployment, retirement, livestock, family or others	Kamble et al. (2024)	FIN18A FIN18A1 FIN18A2



Category Variable		Description	Source	Questions
	Insurances	Holds insurance product, identifies insurance products across country-level data, like car insurance, home insurance (binary variable)	OECD (2022)	FIN18A3 FIN18A4
Awareness of Formal Products	Awareness of Formal Products	Aware of formal products and services	Noor et al., (2022)	FIN 10, FIN 11
		I am aware of the formal products and services (savings, loans, insurance and payments/remittances) usage proxy.	Mindra et al., (2017)	FIN 10, FIN 11
		aware of at least 5 products (binary variable)	OECD (2022)	FIN 10, FIN 11
Quality of Financial Services	Quality	Received information regarding my transactions satisfied with the financial products of the bank	Noor et al., (2022)	
		I know which documents are required to open a bank account I receive prompt information regarding my transactions	Mindra et al., (2017)	

Table 8: List of Variables on Financial Literacy

Category	Variable	Description	Source	Questions
Financial Literacy	Basic Knowledge:	Financial literacy shows respondents' ability to understand basic financial calculations, inflation, and risks of financial securities. Financial literacy scores are calculated based on the number of correct answers to three financial literacy questions.	Khan et al., (2022)	FI1 FL2
		Financial literacy is a continuous variable ranging from 0 to 1.	Khan et al. (2022)	FL6 FL12
	Simple and Compound Interest Rate	Financial literacy is a continuous variable; treated as a dummy variable"	Lusardi & Mitchell (2007); Huston, (2010)	FL1 to FL16
	Inflation			



Category	Variable	Description	Source	Questions
Financial Literacy	Bonds, Securities, stocks:	Financial literacy is a confluence of financial, credit and debt management and the knowledge that is necessary to make financially responsible decisions – decisions that are integral to our everyday lives”. It includes understanding how a checking account works, what using a credit card means, and how to avoid debt.	Zucchi, 2018	FL 1-16
	Risk and returns			
	Credit Card Ownership			
	Basic questions to inquire about the knowledge of the respondent	Possessing the skills and knowledge on financial matters to confidently take effective action that best fulfils an individual’s personal, family and global community goals		FL15
		Understanding of simple and compound interest rates. Simple interest is calculated by multiplying the loan principal by the interest rate and then by the term of the loan. Compound interest multiplies savings or debt at an accelerated rate. Compound interest is interest calculated on both the initial principal and all of the previously accumulated interest.	Suhail et al. (2020) Klapper & Lusardi (2020)	FL13
		Effects of inflation/ understanding of inflation, and financial diversification. It's the gradual rise in prices over time that results in a decrease in purchasing power. A diversified portfolio of equities and bonds can help mitigate inflation risk. Companies' revenues and earnings typically outpace inflation over time.	Suhail et al. (2020)	FL13



Category	Variable	Description	Source	Questions
Financial Literacy		Difference between bonds, securities and stocks: In stocks, the money you invest buys you a portion of ownership in the company. In bonds, the money you use to purchase the security is essentially a loan that you offer to the bond issuer.	Suhail et al. (2020)	FL3 FL12
		How to evaluate risk and return: to estimate the return of the investment, which is the amount of money you expect to earn from it over time. Risk is the uncertainty or variability of the return. It is measured by standard deviation, beta, and scenario analysis.	Suhail et al. (2020)	FL12
		Have a credit card and know how to use it	Kamble et al. (2024); Hasan et al. (2023); Demirgüç-Kunt et al. (2022)	FIN7 FIN7A
		Suppose you had ¥10,000 in a savings account, the interest rate is 2% per year, and you never withdraw money or interest payments. After 5 years, how much would you have in this account? Assume that the interest rate on your savings account is 1% per year and inflation is 2% per year. After 1 year, how much would you be able to buy with the money in this account?	Klapper & Lusardi (2020) Khan et al. (2022)	FL6



Category	Variable	Description	Source	Questions
Financial Literacy		<p>Please indicate whether the following statement is true or false: “Buying a company stock usually provides a safer return than does a stock mutual fund”.</p> <p>**Based on these three questions, they developed a financial literacy index. Then, I measured each correct answer by assigning one point for it and did not deduct any points for wrong answers.</p>		
Awareness of Formal Products	Awareness of Formal Products	Aware of formal products and services (Know about savings, Know about loans, Know about remittances, Knowledge about current account, Knowledge about savings/PLS account, Knowledge about ATM, Know in what way to open an account, Know in what way to draw or deposit cash in an account.	Noor et al. (2022)	FIN4-1 DFL-1
		I am aware of the formal products and services (savings, loans, insurance and payments/remittances) usage proxy.	Mindra et al. (2017)	DFL-1
		Aware of at least 5 products, Count all positive responses across this question, Binary variable: takes the value of 1 if at least five positive responses, otherwise 0	OECD (2022)	DFL-1



Table 9: List of Variables on Financial Literacy

Category	Variable	Description	Source	Questions
Basic knowledge and skills	Digital Financial Knowledge (DFK)	Having a good understanding of digital payment products such as Easypaisa, JazzCash, UBL Omni, HBL Konnect, and Meezan Bank's Digital Banking services	Agrawal & Jain (2019); Morgan & Trinh (2019); Hasan et al. (2023)	DFL1-1, DFL1-1A to DFL1-1H
		Having a good understanding of product digital asset management		DFL-4
		Having a good understanding of digital alternatives		DFL-7
		Having a good understanding of digital insurance		DFL-5
		Having a good understanding of customer rights and protection, as well as the procedure to complain about the service from digital financial providers		DFL-11
	Digital Financial Services	Knowledge of the existence of digital financial services/Are you aware of mobile banking services?	Dube et al. (2023)	DFL-10
		Understanding of digital financial services/Can you explain how mobile banking works?		DFL-10A to DFL-10F
	Owns a mobile phone	Owns a mobile phone = 1 if respondent responds "Yes" to the questions: "Do you personally own a mobile phone? By personally, I mean that you use it the most and control how to use this phone" or "Do you use a mobile phone that belongs to someone else, either by borrowing or paying for its use.	Lyons & Kass-Hanna (2021), Kass-Hanna et al. (2022)	FI2
	Internet	Browse Internet = 1 if respondent used a mobile phone to browse or use the internet in the past.		FI1
		Download = 1 if the respondent used a mobile phone to download music, videos, games or mobile money applications		FIN4-2



Category	Variable	Description	Source	Questions
Basic knowledge and skills	Financial Transactions	Financial transactions =1 if the respondent used a mobile phone to make a financial transaction, such as send or receive money, pay a debt or make a banking transaction.	Kass-Hanna et al. (2022)	DFL-9D
	Owns smart phone	Owns a smart smartphone = 1 if the respondent owns a smart phone.		DFL8
		Mobile phone proficiency score. An index equal to the sum of tasks the respondent undertook using a mobile phone in the past 90 days; scores ranged from 0 to 7.		DFL-9
		Mobile money proficiency score: An index equal to the sum of actions the respondent reported being able to perform without assistance from anyone when using mobile money (conditional on having ever used a mobile money service, but not conditional on having a registered mobile money account)		DFL-10A to DFL-10F
		Sends or receives photos =1 if respondent used a mobile phone in the past 90 days to send or receive photo messages		F12A
	Uses social networking sites	Uses social networking sites =1 if respondent used a mobile phone in the past 90 days to use Facebook, WhatsApp, Twitter, Instagram or another social networking site		DFL-8C
		Opens a mobile money menu =1 if respondent reported finding it “very easy” or “easy” or “neither difficult, nor easy” for them to open a mobile money menu without assistance from anyone		FIN11



Category	Variable	Description	Source	Questions
Basic knowledge and skills	Made a Digital Payment	Percentage of female customers who made a digital payment	World Bank (2024a), Hasan et al., 2023, Didenko et al. 2023 Lusardi & Mitchell (2014); OECD (2018)	DFL-7
	Received a Digital Payment	Received digital payment = Percentage of female customers who received digital payment		DFL-8B
	Risk Diversification	Risk diversification = 1 if the respondent answers correctly to the question: "Suppose you have some money. Is it safer to put your money into one business or investment, or to put your money into multiple businesses or investments?"		FL12
	Inflation	Inflation = 1 if the respondent answers correctly to the question: "Suppose over the next 10 years prices of the things you buy double. If your income also doubles, will you be able to buy less than you can buy today, the same as you can buy today, or more than you can buy today?"		FL13
	Simple Interest	Simple interest = 1 if the respondent answers correctly the question: "Suppose you need to borrow 100 Rupees. Which is the lower amount to pay back: 105 Rupees or 100 Rupees plus 3%?"		FL6
	Compound Interest	Compound interest = 1 if the respondent answers correctly to the question: "Suppose you put money in the bank for two years and the bank agrees to add 15% per year to your account. Will the bank add more money to your account the second year than it did the first year, or will it add the same amount of money both years?"		FL-6



Category	Variable	Description	Source	Questions
Basic knowledge and skills	Compound Interest	Compound interest 2: Suppose you had 100 [units of national currency] in a savings account and the bank adds 10% per year to the account. How much money would you have in the account after five years if you did not remove any money from the account?"	Kass-Hanna et al. (2022)	FL-6
	Digital Financial Proficiency	I can conduct online searches using my digital device(s) (smartphone/PC/laptop)	Morgan et al. (2020)	FI1
		I can send and receive emails on my own		FI1, FI2
		I use mobile banking.		DFL-7
		I use internet banking.		FIN6
		I never share my one-time password with anyone.		DFL-12A
		I never share username, password, and PIN with anyone.		DFL-12A
Demand for financial services	Usage	Mobile money account (% age 15+)	World Bank (2024a)	DFL-1
		Made or received digital payments (% age 15+)		DFL-7, DFL-8B
		Used a mobile phone or the Internet to access an account (%)		FIN6
	Saved	Saved any money in the past year (% age 15+)		FIN13, FIN14
		Saved at a financial institution in the past year (% age 15+)		FIN14A
	Borrowed	Borrowed any money in the past year (% age 15+)		FIN15
		Borrowed from a financial institution in the past year (% age 15+)		FIN16A
	Future	Coming up with emergency funds: possible (% age 15+)		FIN17
Awareness	Financial Awareness and Behaviour (FAB)	Mobile money awareness =1 if respondents respond "Yes" to the question: "Have you ever heard of something called Mobile Money?"	Lyons & Kass-Hanna (2021), Kass-Hanna et al. (2022)	DFL1-1
		Mobile Money Account =1 if respondent has a mobile money account		DFL-1, DFL1-1



Category	Variable	Description	Source	Questions
Awareness	Financial Awareness and Behaviour (FAB)	Knowing about the risks of borrowing (e.g., overindebtedness, abusive, and predatory lending practices)	Lyons & Kass-Hanna (2021)	FL10 FIN15
		Knowing where to seek financial information and advice.		FIN10-1
		Knowing about positive financial behaviours (e.g., budgeting, saving, preparing for emergencies and retirement, responsible borrowing)		FL15, FL15A
	Digital Financial Risks and Benefits (DFRB)	Advantages and disadvantages of digital financial services: What do you think are the benefits of online banking? "What risks do you associate with using digital financial services?"	Dube et al, 2023	DFL-5, DFL-9
		Risks associated with digital financial services = Do you know how to protect your data online?		DFL-11
		Awareness of phishing/spoofing = Can you identify a phishing email?		DFL-11
		Awareness of personal data theft = How do you protect your personal information online?		DFL-11
		Awareness of hacking = Do you know how to secure online accounts?		DFL-11
		Awareness of cyber risk = What cyber risks are you aware of?		DFL-13
		Strong password protection = Do you use strong passwords for your accounts?		DFL-12
		Multi-Factor Authentication (MFA)= Do you use multi-factor authentication for your accounts?		



Category	Variable	Description	Source	Questions
Awareness	Digital Financial Risks and Benefits (DFRB)	Data privacy standards and cybersecurity protocols = What cybersecurity protocols do you follow?		DFL-11
		Knowledge of basic rights in case of cyber fraud = Do you know your rights if you are a victim of cyber fraud? How would you report cyber abuse?		DFL-13
Practical know-how (through Mobile Money)	Navigate	Navigate =1 if respondent can “Open”, “Find a particular menu option”	Lyons & Kass-Hanna (2021), Kass-Hanna et al. (2022)	DFL-10A
	Transaction	Initiate transaction =1 if the respondent can initiate transactions.		DFL-10C
		Complete transaction =1 if the respondent can complete transactions.		DFL-10D
		Correct errors, if the respondent can correct errors such as phone numbers or amounts		DFL-10E
		Cancel transaction =1 if the respondent can cancel transactions.		DFL-10F
Decision Making	Financial Attitudes and Behaviour	I would like to practice positive financial behaviours such as responsible borrowing, savings for emergencies, etc.	Lyons & Kass-Hanna (2021)	FL15
		I never borrow money at an abnormal rate of interest, even though my situation compels me.		FIN15, FIN16
		Self-determination to use the knowledge and skill (SDMKS): I deal with digital financial transactions with pride.		DFL-10
		I prefer digital financial transactions as they provide rewards, incentives, cash back, and other benefits.		DFL-5, DFL-6
		I use DFS because other people positively see me.		



Category	Variable	Description	Source	Questions
Decision Making	Financial Attitudes and Behaviour	I do not want to practice my financial knowledge and skills even though I am aware of the benefits that I derive from practising them.		FL 15
		I do not want to be rational in digital financial transactions, even though I do not have a reason for doing so		FL 15

Final Questionnaire

On the basis of the literature review discussed in the previous section, different questions were asked in order to find the required variables for addressing the objectives of this study. The questionnaire had four different sections, as discussed below.

Section I: This section had questions on socioeconomic indicators and attributes related to the business experience of entrepreneurs.

Section II: The second section of the questionnaire asked questions on financial inclusion based on a rigorous literature review summarised in Table 6.

Section III: This section included questions related to the financial literacy of the respondents. These questions were included in the questionnaire based on the literature reviewed (see Table 7). Questions were related to financial literacy, the ability to manage budget, savings and investments, risk management, perceptions of interest rates, financial education and training, time value of money, financial education and training, basic banking services, insurance, budget, tax, inflation, savings, numerical skills, etc.

Section IV: This section included questions related to the digital financial literacy of the respondents. Questions were designed based on an extensive literature review (see Table 8). These questions inquired about respondents' perception of banking services available on mobile, E-money accounts, digital payments, online payments, mobile money transactions, ATM use, etc. These queries might be categorised into digital knowledge (like online shopping and mobile banking, etc.), perception of finances (like budgeting, saving, and time value of money), awareness of digital financial services, knowledge of digital finance risk management, awareness of customer rights, attributes of products, etc.

Analytical Framework

Data were collected using the questionnaire, and the following analytical framework was adopted for addressing the study objectives.

The gender gap in financial literacy, digital financial literacy and financial was found using different statistics (e.g., descriptive statistics, chi-square, and independent sample t-test) and graphs. For addressing the main objective of this study, i.e., to assess the effect of digital financial literacy on the financial inclusion of female entrepreneurs in Faisalabad, logistic regression was used. Based on findings, the last objective, i.e., to recommend practical policy measures, was addressed. The methodology is summarised in the following table:

Table 10: Methodology for Each Objective

S.No.	Objective	Data	Method
1	To estimate the degree of financial literacy in men and women in Pakistan.	Secondary data: World Bank (2024a)	Descriptive statistics and graphs
2	To analyse the gender gap in digital financial literacy among entrepreneurs in <u>Faisalabad</u>	Primary data: Survey of entrepreneurs in <u>Faisalabad</u> using a structured questionnaire	Descriptive statistics (means, frequencies, and percentages), Cronbach's Alpha
3	To evaluate the gender gap in financial inclusion among entrepreneurs in <u>Faisalabad</u>		Cross-tabs with statistics like Pearson's chi-square, likelihood ratio Linear-by-linear association, phi, Cramer's V, contingency coefficient and means comparison using the independent sample t-test
4	To assess the effect of digital financial literacy on financial inclusion in female entrepreneurs in <u>Faisalabad</u>		Logistic egression
5	To recommend practical policy measures based on this research.		Conclusion of all findings

Formation of the Index of Financial Inclusion, Financial Literacy, and Digital Financial Literacy

For addressing the study’s objectives 2-4, described in Table 10, three indices, namely, financial inclusion index (FII), financial literacy index (FLI), and digital financial literacy index (DFLI), were constructed.

Financial Inclusion Index (FII) Formation

Assigning weights to the variables of the financial inclusion index based on already available literature is complex due to the differences in the approaches followed by different researchers. Some approaches assign equal weights to the variables involved (Sarma, 2008; Zhang & Posso, 2019; Eze & Alugbuo, 2021; Obiora & Ozili, 2024). This study, however, assigned weights according to the importance of each variable following the approach used by Demirgüç-Kunt et al. (2022). We assigned a higher weight to the “usage of formal products” than to “access to bank products/account holding”. Even lower weight was assigned to “holding debit card”, “borrowing and saving”, etc. Table 7 presents a detailed account of the literature’s recommendations regarding the variables that should be part of the FII.

The following are the steps for the construction of the FII:

$$FII_i = w_1 \times X_1 + w_2 \times X_2 + w_3 \times X_3 + \dots + w_n \times X_n$$

Where FII_i is the financial inclusion index for n respondents, W_n represents the weights, and X_n represents the constructs developed following the steps given in Table 10. The details of all the variables included, as well as the SPSS syntax.

Table 11: Financial Inclusion Index (Dimensions and their Weights)

S.No.	Dimension/Sub-Dimension (X_i)	Weightage (w_i)
1	Access to financial services Column3	0.2
1.1	Account holding	
1.2	Access to financial service providers (supply side)	
2	Usage of financial services	0.75
2.1	Account usage	
2.2	Savings	
2.3	Borrowings	
2.4	Financial resilience:	



S.No.	Dimension/Sub-Dimension (X_i)	Weightage(w_i)
2.4.1	Risk management	
2.4.2	Insurance	
3	Awareness of formal products	0.05
3.1	The capability of opening an account at a bank or another type of formal financial institution without the help of another person	
3.2	The capability of opening a mobile money account without the help of another person	

Based on the calculations discussed above, the values of the FII range between 0 and 1, where 0 means no financial inclusion and 1 means full financial inclusion. The financial inclusion dummy variable (FII_DUMMY) was also formed, where FII's value equal to or less than 0.5 was assigned '0' and values ranging between 0.51 and 1 were assigned '1'. Therefore, FII_DUMMY's values 0 and 1 mean not included and included, respectively.

Financial Literacy Index Formation

The financial literacy index (FLI) has three dimensions, which are based on insights provided in Table 8. These dimensions are "basic financial knowledge and understanding", "financial attitude", and "financial behaviour". Table 8 provides a basis for the construction of this multidimensional index. The literature assigns equal weight to all dimensions for assessing the financial literacy of the respondents. This study, however, assigned a slightly higher weight to the assessment question than to simple queries (see, for instance, Huston, 2010; Lusardi & Mitchell, 2014). A respondent was given a score of 1.5 for answering the assessment question correctly and 1 for answering a simple query. In both cases, a score of 0 was assigned if the answer was incorrect. Some studies, such as Klapper & Lusardi (2020), have assigned different weights to different questions. The FLI's values, thus, ranged between 0 and 21. This range is consistent with OECD's approach (also see Atkinson & Messy, 2012).

Another percentage-based variable, FLI_SCORE, was constructed to assess the financial literacy of the respondents, following Lusardi & Mitchell (2014). Such standardisation helps an easy gender-wise comparison and the interpretation of results. Still another FLI variable, called FII_CAT, was constructed with three categories of low, moderate, and high financial literacy. Low financial literacy meant FLI_SCORE's values ranged from '0' to '33.33', 33.34 and 66.66 in case of moderate financial literacy, and 66.67 and above in



case of high financial literacy category had values 66.67 and above. Other studies, such as Lusardi & Mitchell (2014), have also used such a categorisation.

Table 12: Financial Literacy Index (Dimensions and Score)

S.No.	Dimension/Sub-Dimension (Y _i)	No of Question	Maximum Score
1	Basic financial knowledge and understanding		
1.1	Banking basics and financial products	5	5
1.2	Time value of money and interest rates	2	1+1.5=2.5
1.3	Savings and liquidity	2	1+1.5=2.5
1.4	Loans and credit	2	1.5+1.5=3
1.5	Risk and return	1	1.5
1.6	Inflation awareness	1	1.5
1.7	Remittances knowledge	1	1
2	Financial attitude		
2.1	Attitude towards money and spending	3	3
3	Financial behaviour		
3.1	Behavioural aspects of financial management	1	1
Maximum Score (FII)			21
% Score (FII_Score) (Max)			100
FII Categorised (FLI_CAT)			Low, Medium, High

Digital Financial Literacy Index Computation

Digital financial literacy (DFL) is a multidimensional index that was constructed using insights developed in Table 9 based on a careful review of the literature. Following the definitions in OECD (2018), this index has four dimensions, namely, “basic knowledge and understanding/skills related to digital products and mobile money”, “digital financial services”, “digital financial proficiency”, and “awareness”. Since “basic knowledge and skills” is the most important element, it was given a higher weight in the index, as a good understanding of digital payment products (DFL1-1 variable in our case)

is crucial for developing digital financial literacy (Agrawal & Jain, 2019). DFL_SCORE, which is a percentage-based variable, was constructed to assess the digital financial literacy of the respondents. This variable helped in categorising DFL as the “DFL_CAT” variable. Following Lusardi & Mitchell (2014), this variable was assigned the categories of low, moderate, and high.

Table 13: Digital Financial Literacy Index

S.No.	Dimension/Sub-Dimension (Z_i)	No of Question	Score
1	Basic knowledge and skills related to mobile money and other digital products	5	9
1.1	Digital financial knowledge (DFK)	1	1*1
1.2	Understanding of product digital asset management	1	2*1
1.3	Understanding of digital alternatives	1	2*1
1.4	Knowledge of customer rights and protection	2	2*2
2	Usage of digital financial services		4
2.1	Knowledge of digital financial services	2	2*1
2.2	Understanding of digital financial services	1	1*1
2.3	Mobile phone ownership	1	1*1
3	Digital financial proficiency		12
3.1	Mobile money proficiency	6	6*2
4	Awareness		5
4.1	Awareness of mobile money	1	1*1
4.2	Understanding financial risks	1	1*1
4.3	Financial information and advice	1	1*1
4.4	Awareness of cyber risks and protections	2	2*1
Maximum score (DFL)			30
% Score (DFL_Score) (Max)			100
DFL Categorised (DFL_CAT)			Low, Medium, High

Analysing the Effect of DFL on Financial Inclusion

To address the fourth objective, i.e, the effect of digital financial literacy on financial inclusion in female entrepreneurs in Faisalabad, the following specification was used:

$$FII = \beta_0 + \beta_1 DFL + \beta_2 X_i + \varepsilon_i \quad 1$$

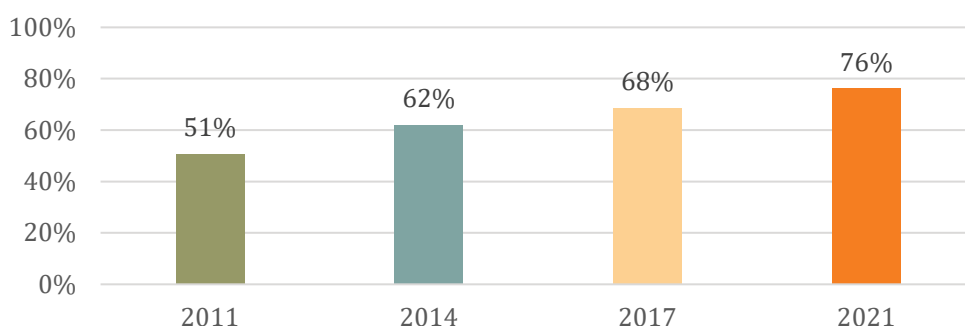
In the equation above, FII stands for the financial inclusion index. The proxies of this variable might include account holdings, savings, borrowings, and credit card ownership (dummy variables). DFL stands for digital financial literacy, and it is represented by the ability to make and receive digital payments. Finally, X_i represents variables such as gender, etc.

3. FINDINGS AND DISCUSSION

Global Financial Literacy and Financial Inclusion

This section provides analysis based on the data from the World Bank's Global Findex Database. The Global Findex Database defines account ownership as the percentage of respondents who have an account with a bank or any financial institution or who use a mobile money service. Account ownership depicts a person's engagement with financial service providers, which shows their degree of financial inclusion. Worldwide, more than three-fourths of adults aged more than 15 years owned an account in 2021, which increased from 50% in 2011 (Figure 3).

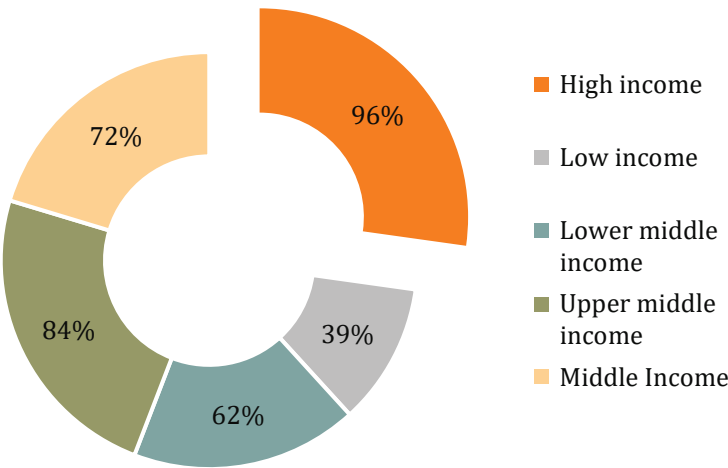
Figure 3: Global Proportion of Adult Population with an Account



Source: World Bank (2024a).

Among different income groups of countries, the low-middle income group of countries had the lowest proportion of adults with an account (39%). This figure was 62%, 72%, and 84% in the case of lower-middle-income, middle-income, and upper-middle-income countries, respectively. In high-income countries, 96% of adults (aged 15 years and above) owned an account, implying that only 4% of adults were unbanked in these countries (Figure 4).

Figure 4: Adult Account Ownership in Different Income Groups of Economies of the World

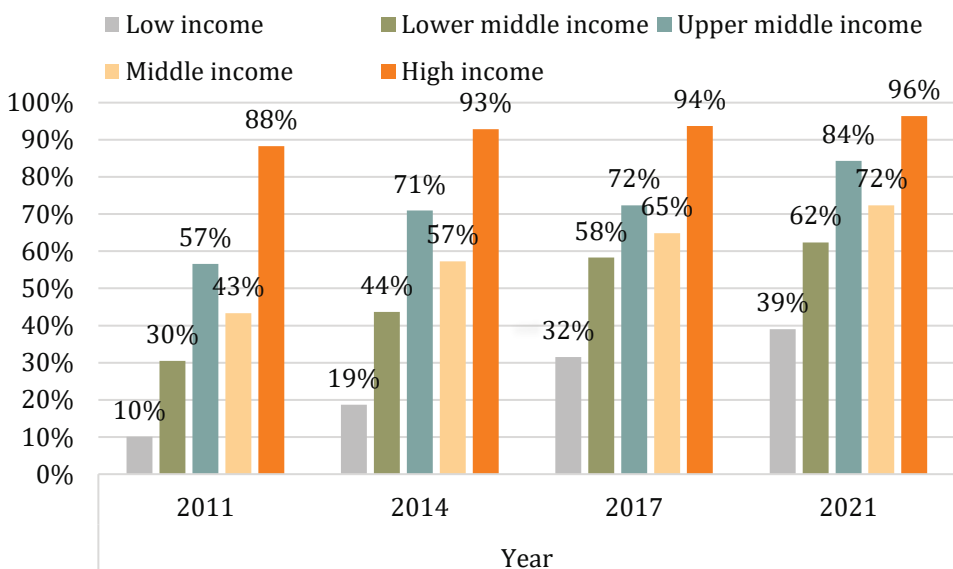


Source: World Bank (2024a).

Globally, the proportion of account ownership of adults increased by almost 50 percentage points from 51% of adults to 76%. On the other hand, the account ownership increased in high-income, middle-income, upper-middle-income, and low-middle-income by 4, 25, 19, and 41 percentage points, respectively. However, the average rate of growth in low-income economies was steeper, as it increased from 10% to 39%, i.e., almost a fourfold increase in a decade (Figure 5).



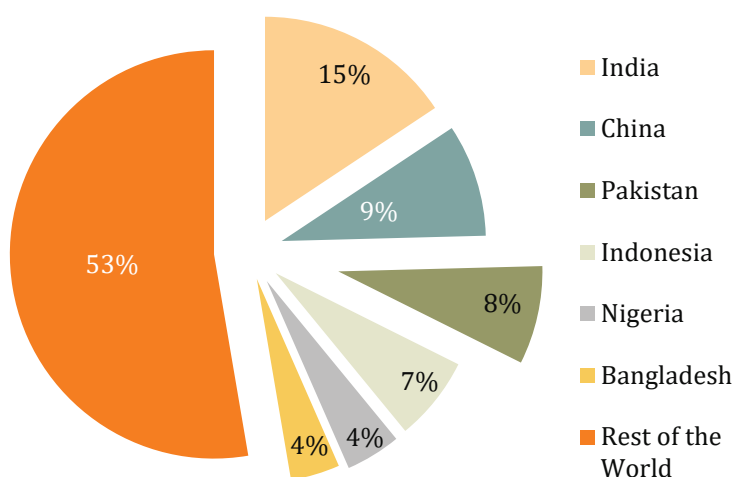
Figure 5: Adults' Account Ownership in Different Economies



Source: World Bank (2024a).

More than half of the global adult population was unbanked and resided in six countries. China, India, and Pakistan were the world's three largest unbanked nations, with 9%, 15%, and 8% unbanked adults, respectively.

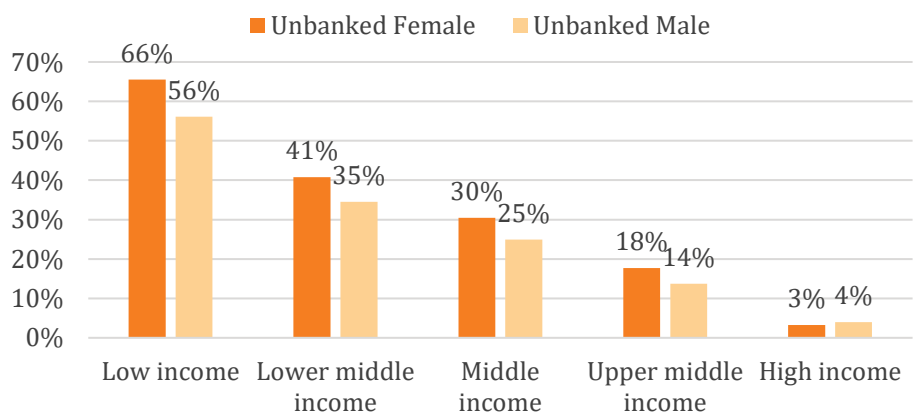
Figure 6: World's Population with Unbanked Adults



Source: World Bank (2024a).

Globally, women were disproportionately more unbanked, as a higher percentage of women than men lacked banking access. About 13% of all the unbanked adults in the world were women compared to 11% unbanked men (World Bank, 2024a). Except in the case of high-income economies, the rest of the economies had a higher proportion of female than male adults aged 15 years and above who were unbanked (Figure 7).

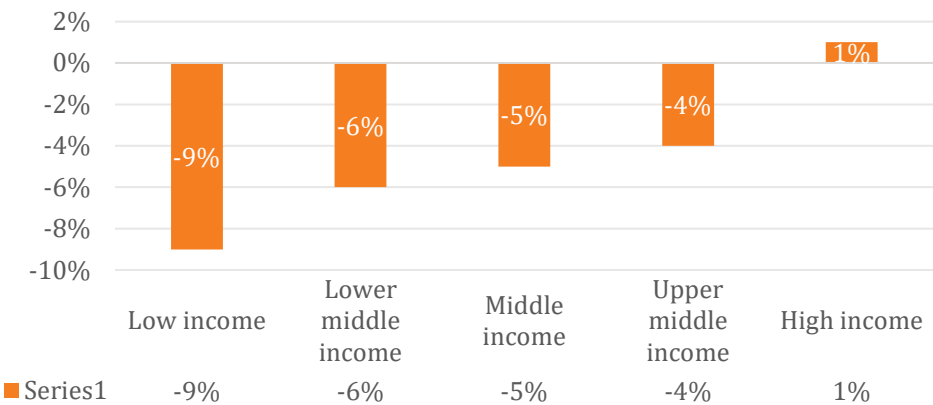
Figure 7: Unbanked Male and Female Adults in Different Economies



Source: World Bank (2024a).

The gender gap of unbanked adults was highest in low-income countries at almost ten percentage points. In the case of low-middle-income countries, the gender gap of unbanked adults was six percentage points, whereas it was five percentage points in the case of middle-income economies (see Figure 8).

Figure 8: Gender Gap of Unbanked Adults in Different Economies

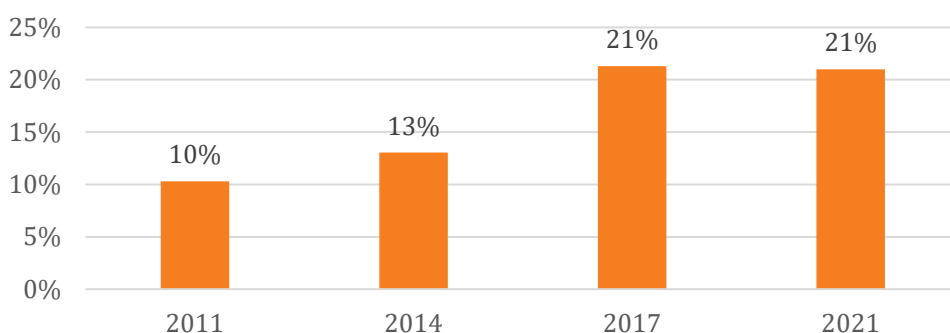


Source: World Bank (2024a).

Financial Literacy and Financial Inclusion in Pakistan

Pakistan belongs to the low-middle income group, where growth in account ownership of the country was a mere 11 percentage points, from 10% in 2011 to 21% in 2021 (see Figure 9). This increase is not even comparable to the average growth rate of its counterparts, as the countries belonging to the low-middle-income group had a growth rate of 41 percentage points. Pakistan was at the lowest rank amongst lower-middle-income economies in the case of account ownership (World Bank, 2024a).

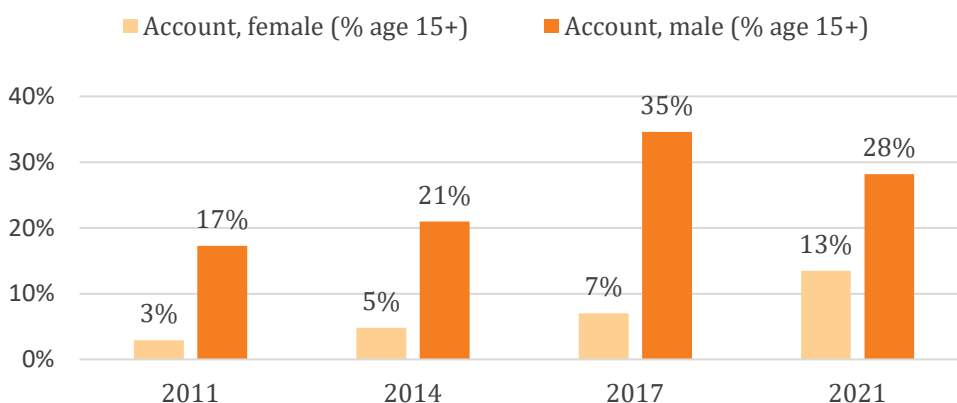
Figure 9: Account Ownership of Adults in Pakistan



Source: World Bank (2024a).

Moreover, the percentage of women having an account was even alarmingly low, with only 13% of women possessing a bank account (Figure 10).

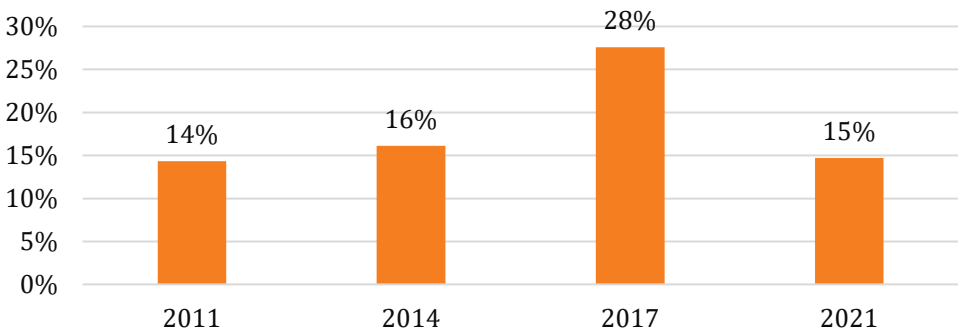
Figure 10: Account Ownership in Pakistan – Adult Females and Males



Source: World Bank (2024a).

There was a significant gender disparity in account ownership in Pakistan, with a notable 15% gap between men and women (Figure 11).

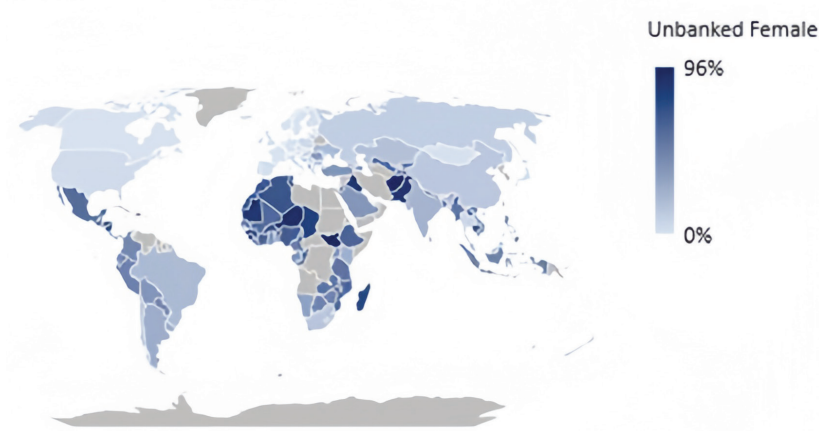
Figure 11: Gender Gap in Account Ownership in Pakistan



Source: World Bank (2024a).

Pakistan had the third-largest population of unbanked adults in 2021 at 114 million, which was more than 8% of the world’s unbanked population (after both China and India). Unbanked Pakistani women constituted more than 87% of females, whereas this proportion is 72% in the case of their male counterparts (Figure 12). Pakistan's unbanked population was predominantly composed of women, who accounted for more than half of the individuals without access to banking services. Reported reasons for women’s exclusion from the formal banking services included women not having official identification, limited access to technology (like mobile phones), and financial illiteracy.

Figure 12: Global Unbanked Adults – Male and Female

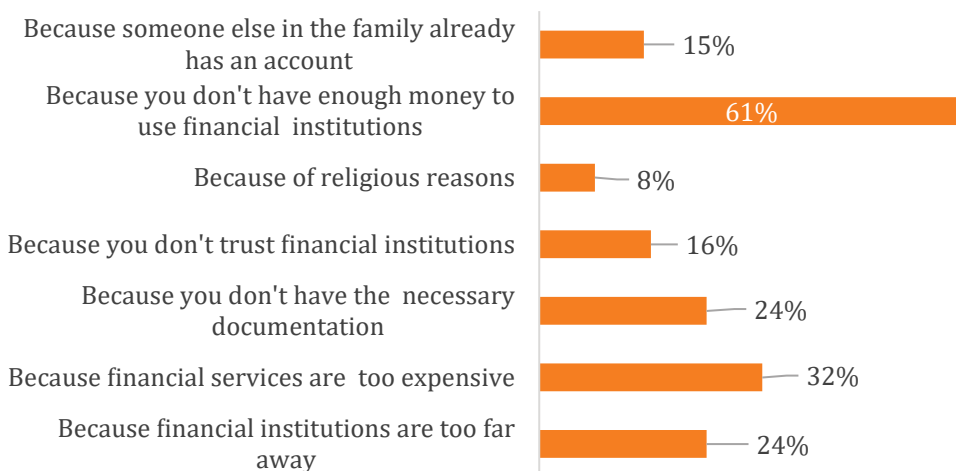


Source: Authors’ computations.



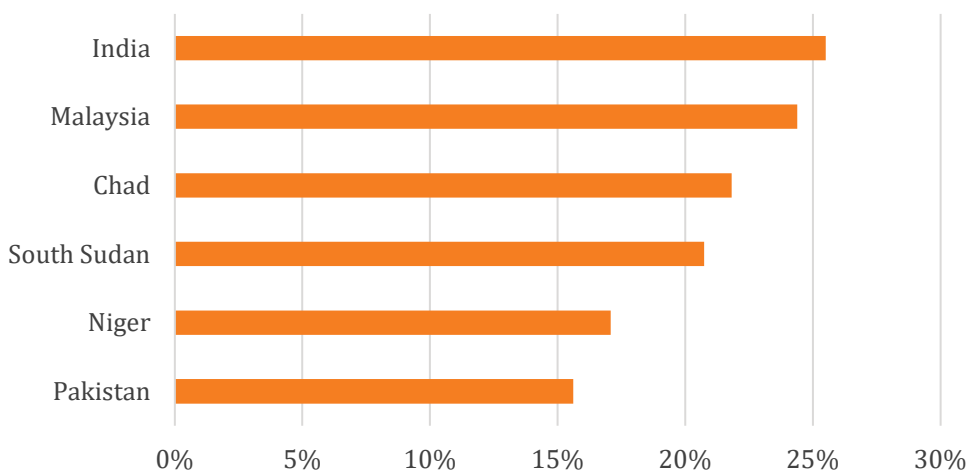
Evidently, labour force participation and financial inclusion are correlated. For instance, in the case of Pakistan, adults who are part of the labour force (29%) are roughly twice the number of individuals who have a bank account than those who do not (15%).

Figure 13: Reasons for Not Having an Account (% ,15+ Age)



Source: World Bank (2024a).

Figure 14: Can Use an Account at a Bank or Financial Institution Without Help If Opened



Source: World Bank (2024a).

Results of the Survey in Faisalabad

The previous section presented the overall situation of financial inclusion and financial literacy at the national level. This section addresses objectives two to four of this study. It uses the data collected through the survey using the questionnaire and methodology presented in the methodology section.

Socioeconomic Characteristics of Respondents

There were around 58% male and 42% female entrepreneurs, indicating a slightly higher proportion of male respondents, as shown in Table 14 below.

Table 14: Gender of the Respondents

Gender	No. of Respondents	Percent
Male	137	57.8
Female	100	42.2
Total	237	100.0

Source: Author’s calculations.

The proportion of male entrepreneurs being slightly higher than females is also shown by other studies (see, for example, Reddy et al., 2024; Kamble et al., 2024; Al-Shami et al., 2024, etc.). In the case of Pakistan, it points to the tendency of men towards participating in entrepreneurial activities comparatively more.

The following table summarises the socioeconomic characteristics of the survey respondents, both male and female.

Table 15: Socioeconomic Characteristics of the Respondents

Variable	Mean	Std. Deviation	Minimum	Maximum
Age (Years)	36.57	11.611	17	86
Education (Years of schooling)	12.66	3.782	0	19
Household income (PKR)	295,270	140,200	15,000	20 million
Family size (Numbers)	6.45	3.021	2	27
Dependents (Numbers)	3	1.891	0	16

Source: Author’s calculations.

The table shows that the average age of entrepreneurs was around 37 years. The mean education was almost 13 years, which shows that an average entrepreneur was educated with a secondary or higher secondary level of education. This finding is not surprising as Faisalabad is a metropolitan area with a well-established educational infrastructure. However, the presence of uneducated entrepreneurs represents the prevalence of disparities in access to education.

The average household income of entrepreneurs was PKR 295,000, ranging from PKR 15,000 to PKR 20 million, indicating economic diversity among the entrepreneurs. Faisalabad, being an industrial hub, houses individuals with a wide range of incomes from low to high levels.

The average family size was six, pointing towards the norm of having large families in the region. There were entrepreneurs with as many as 27 household members, revealing the extended family system common in the region. The average of three dependents per household indicates a typical family structure, with older members supporting children and elderly dependents. These results define the study area's socioeconomic dynamics, including its industrial economy, large family size by norm, and continual challenges in achieving equitable access to education and income prospects.

Enterprise Profile

Table 16 presents the breakdown of the types of enterprises, namely, micro enterprises, small enterprises, and medium enterprises, covered in the survey.

Table 16: Types of Enterprise of Male and Female Respondents

Type of Enterprise	Male (%)	Female (%)	Total (%)
Micro enterprise	73 (53)	76 (76)	149 (63)
Small enterprise	40 (29)	18 (18)	58 (25)
Medium enterprise	24 (18)	6 (6)	30 (13)
Total	137	100	237

Source: Author's calculations.

Table 16 reveals that the majority of the enterprises (63%) were micro-enterprises. These enterprises had a higher proportion of female entrepreneurs (76%) compared to male entrepreneurs (53%). This indicates that female entrepreneurs in the study area tend to participate in smaller-scale businesses, possibly due to financial resource constraints (also highlighted in Table 20) or societal norms of allowing them to participate on a limited scale. Small enterprises constituted one-fourth of the total. These enterprises had a greater proportion (29%) of male entrepreneurs than female entrepreneurs (18%). This difference is probably because of a lack of access to capital for women (see Table 19 and Table 20). The last category, i.e., medium enterprises, was the least common one, with only 13% of the total entrepreneurs belonging to this category. There was also a notable gender gap in this category, as 18% of such enterprises were run by male entrepreneurs compared to just 6% female entrepreneurs. This gender disparity is probably due to a high demand for financial and managerial resources required to run medium enterprises, which females perhaps find harder to meet in the study area, given the socioeconomic challenges they face. This highlights the gendered differences in enterprise size, influenced by cultural, economic, and institutional factors prevalent in Faisalabad.

Table 17 presents the ownership structure of enterprises operated by the respondents in the study area.

Table 17: Enterprise Ownership Structure

Ownership Structure	Male (%)	Female (%)	Total(%)
Sole proprietorship	79 (58)	79 (79)	158 (67)
Partnership	30 (22)	13 (13)	43 (18)
Private limited company	18 (13)	4 (4)	22 (9)
Other	9 (6.6)	4 (4)	13 (5.5)
Total	136	100	236

Source: Author's calculations.

The majority of respondents operated under a sole proprietorship structure, consisting of 67% of the total. It was more prevalent among female entrepreneurs (79%) compared to their male counterparts (58%). The underlying reason for this result could be the lower requirement of formal capital and the associated fewer legal obligations, making it the preferred choice of female entrepreneurs in Faisalabad. Partnerships accounted for 18% of the enterprises, with a higher proportion of male respondents (22%) than female respondents (13%). This might be because of male entrepreneurs' networking capabilities, as highlighted in Table 20. Additionally, there is a lack



of trust in the capabilities of women to manage shared financial and managerial responsibilities. Private limited companies made up 9% of the total, with males (13%) dominating female entrepreneurs (4%). This gap may be attributed to higher resource requirements and regulatory burden linked with private companies, which female entrepreneurs often find difficult to tackle due to limited access to finances (as highlighted in Tables 20 and 21).

Table 18 presents the role of respondents in the enterprise.

Table 18: Respondents' Role as Owner/Manager/Others in the Enterprise

Role	Total (%)
100% owned by the respondent	150 (64.1)
Majority-owned by the respondent	7 (3)
Majority-owned by family members	19 (8)
Majority-owned by other than family members	7 (3)
Respondent is the manager	41 (17.5)
Respondent is a contributing family worker	4 (1.7)
Others	6 (2.6)
Total	234 (3 missing)

Source: Author's calculations.

Table 19 shows that the majority of businesses (64.1%) were 100% owned by the respondents, while businesses majority-owned by non-family members were uncommon (3%). Contributing family workers accounted for just 1.7% of the total, indicating minimal reliance on unpaid family labour. Gender disaggregation showed that females had a lower representation in managerial roles, indicating potential barriers to leadership positions within their own enterprises.

Table 19: Respondents' Experience in Current Business (Years)

Mean	10.52
Std. Deviation	8.387
Minimum	0
Maximum	50

Source: Author's calculations.

The majority of respondents had experience of one to ten years in the current business. Gender wise analysis revealed that male entrepreneurs had relatively more experience, as a higher percentage of males had four to ten years of experience. Female entrepreneurs, on the other hand, had a more even distribution of experience across all years of experience. The one-to-three years' experience category had a higher percentage of female entrepreneurs (14.1%) as compared to male entrepreneurs (11.3%). On the other hand, there were more male entrepreneurs (43.6%) in the three-to-ten years of experience category than female entrepreneurs (30.3%). Finally, 21.1% male respondents had eleven or more years of experience, while 15.2% females were in this category.

Table 20: Is Credit a Source of Funding to Start a Business?

Response	No. of Entrepreneurs	Percent
No	170	71.7
Formal sources	34	14.3
Informal sources	33	13.9
Total	237	100.0

Source: Author's calculations.

Table 20 highlights that access to formal financial information was very limited among the respondents, as a large majority of entrepreneurs (72%) had not accessed any form of credit (formal or informal). This finding reinforces the significance of financial literacy and financial inclusion. Access to formal financial sources is important for enhancing financial inclusion (Demirgüç-Kunt et al., 2022).

Table 21: Types of Gender Specific Challenges

Challenge	Male (%)	Female (%)	Total
Nothing	105 (76.6)	34 (34)	139 (58.6)
Access to finance	11 (8)	27 (27)	38 (16)
Balancing work and family responsibilities	0 (0)	12 (12)	12 (5.1)
Societal attitudes	1 (0.7)	8 (8)	9 (3.8)
Networking opportunities	17 (12.4)	19 (19)	36 (15.2)
Other	3 (2.2)	0 (0)	3 (1.3)
Total	137	100	237

Source: Author's calculations.



The responses to the question on challenges associated with gender are summarised in Table 21. The table shows that the male entrepreneurs' large majority (77%) did not face any such challenges, suggesting a comparatively smooth entrepreneurial experience in their case. On the other hand, roughly half of the female entrepreneurs (46%) reported struggling with either access to finance (27%) or networking (19%), which is consistent with research suggesting that women entrepreneurs often face difficulties in securing funding (World Bank, 2020). Balancing work and family responsibilities is a unique challenge for female entrepreneurs, which is supported by the literature.

Effect of Respondents' Status as Entrepreneurs on their Livelihoods

The survey also assessed the impact of starting a business on various aspects of the livelihood of entrepreneurs. There were five different questions to create the livelihood index. According to the Cronbach's Alpha value, the reliability of these questions was 82%.

Table 22: Impact of Starting a Business on Livelihood Index

Mean	4.5376
Std. Deviation	.42204
Minimum	3.00
Maximum	5.00

Source: Author's calculations.

The results presented in Table 22 reveal that starting a business impacted the livelihood of respondents positively, where the majority of respondents (71%) reported the maximum score (5) on the Likert scale. Nonetheless, female respondents predominantly reported lower scores (3.00-3.80). It reveals that female entrepreneurs may face challenges. This result is consistent with limited access of female entrepreneurs to financial services (Table 20).

Gender Gap in Financial Literacy and Digital Financial Literacy among Entrepreneurs in Faisalabad

Overall Financial Literacy

The financial literacy index was constructed following the methodology presented in methodology section. Cronbach’s Alpha was 63% for the variables/constructs/questions included in the FLI, presenting an acceptable reliability for its construction (Sekaran & Bouge, 2016). FLI_SCORE was a standardised variable based on the FLI index, with a 0-100 range, where 0 means “no financial literacy” and 100 means “maximum financial literacy” levels.

Table 23: Financial Literacy Score Index

Mean	49.176
Std. Deviation	16.823
Minimum	7.14
Maximum	95.24

Source: Author’s calculations.

Table 23 reveals that the mean value score was 49, which showed a moderate level of financial literacy. However, it ranged between 7 and 95. The existence of a large spread of this index, with very low and very high FLI scores, implies that there could be considerable gaps, indicating perhaps the gender gap, in financial literacy among different entrepreneurs.

Table 24: Financial Literacy Category Index

FLI_CAT	No. of Entrepreneurs	Percent
Low financial literacy	49	20.7
Moderate financial literacy	155	65.4
High financial literacy	33	13.9
Total	237	100.0

Source: Author’s calculations.

Table 24 shows the results of the financial literacy index (categorised) variable, constructed on the basis of FLI_SCORE. This index is divided into three categories, namely, low, moderate, and high levels of financial literacy. A large majority of respondents (86%) reported low (21% respondents) or moderate (65.4% respondents) levels of financial literacy. Only 14% had a high level of financial literacy. These findings suggest that the entrepreneurs with low financial literacy need specific interventions.

Gender Gap in Financial Literacy

This subsection addresses the first part of the second objective of this study. A comparison of means using an independent sample t-test is presented below in Table 25.

Table 25: Independent Samples Test: FLI SCORE Comparison Between Male and Female Entrepreneurs

	Gender	N		Mean	Std. Deviation	Std. Error Mean				
FLI_	Male	137		54.414	14.548		1.243			
SCORE	Female	100		42	17.144		1.714			
		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
FLI_SCORE	Equal variances assumed	4.019	0.046	6.014	235	0.000	12.41432	2.064	8.348	16.481
	Equal variances not assumed			5.863	191.833	0.000	12.41432	2.117	8.238	16.591

Source: Author's calculations.

Results of independent samples t-tests indicated statistically significant differences in FLI_SCORE values between men and women. The FLI_SCORE's mean value for male entrepreneurs was 54.414, showing a moderate to high financial literacy level. In contrast, the FLI_SCORE mean value of the female counterparts was considerably low (42), showing a low level of financial literacy. The value of $t_{cal} = 6.014$ ($p < 0.01$), which indicates that this mean difference in financial literacy in the case of male and female entrepreneurs is statistically significant.

These findings suggest that there was a significant gender gap in financial literacy among entrepreneurs in Faisalabad, which is consistent with the broader literature on financial literacy and gender. This gap may have important implications for the financial decision-making and business performance of female entrepreneurs, highlighting the need for targeted interventions to improve financial literacy among female entrepreneurs.

Literature reports similar findings. For example, Lusardi & Mitchell (2014) found that women tend to have lower levels of financial literacy compared to men, and that this gap is particularly pronounced among older adults. Allgood & Walstad (2016) found that women tend to have lower levels of financial knowledge compared to men, and that their financial behaviour is different from men's. Similarly, Van Rooij et al. (2011) found that women tend to have lower levels of financial literacy and financial inclusion compared to men, particularly in developing countries.

Table 26 presents the results of the FLI categorised on an overall basis. This index presents different levels of financial literacy among entrepreneurs, as shown in the table.

*Table 26: Financial Literacy Index (Categorised) * Gender Cross tabulation*

Financial literacy index (Categorised)	Male (%)	Female (%)	Total (%)
Low financial literacy	12 (8.8)	37 (37)	49 (20.7)
Moderate financial literacy	102(74.5)	53 (53)	155 (65.4)
High financial literacy	23(16.8)	10 (10)	33 (13.9)
Total	137 (100)	100 (100)	237 (100)

Source: Author's calculations.

Table 26 reveals that a large majority of female entrepreneurs, i.e., 90%, either had low financial literacy (37%) or moderate financial literacy (53%). In contrast, the majority of male entrepreneurs – around 85% – either had moderate financial literacy (74.5%) or high financial literacy (10%). Only 8.8% of male entrepreneurs had low financial literacy.

Table 27a presents the strength of association between financial literacy and gender based on different statistics.

Table 27a: Association between Financial Literacy and Gender

	Value	df	Asymp. Sig. (2-sided)
Pearson's chi-square	28.280	2	0.000
Likelihood ratio	28.598	2	0.000
Linear-by-linear association	20.687	1	0.000
Phi	.345		0.000
Cramer's V	.345		0.000
Contingency coefficient	.327		0.000

Source: Author's calculations.



In Table 27b, the chi-square test revealed a statistically significant association between the FLI (categorised) and gender (p -value = .000). The phi coefficient (.345) and Cramer's V (.345), on the other hand, indicated a moderate strength of association between the two variables. The results suggest that there were significant gender gaps in financial literacy levels, with female entrepreneurs having lower financial literacy, whereas their male counterparts had moderate to high financial literacy. These findings have implications for financial education and policy initiatives targeting specific gender groups.

Table 27b: The Effect of Financial Literacy and Gender on Monthly Turnover

Model Summary						
Model		R	R Square	Adjusted R Square	Std. Error of the Estimate	
1		.353a	.125	.106	183.13328	
ANOVA ^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1094912.339	5	218982.468	6.529	.000b
	Residual	7680155.807	229	33537.798		
	Total	8775068.146	234			
^a Dependent variable: Monthly turnover (PKR ‘00,000)						
Coefficients ^a						
Model		Unstandardised Coefficients		Standardised Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-108.203	65.270		-1.658	.099
	Gender	-30.141	26.784	-.077	-1.125	.262
	FLI_SCORE	1.472	.799	.126	1.843	.067
	Education in Years	5.566	3.385	.109	1.644	.101
	Type Of Enterprise	49.280	18.227	.181	2.704	.007
	Family Size	-7.670	3.996	-.119	-1.920	.056

Source: Author's calculations. aMonthly turnover (PKR '00,000)

Financial literacy, gender, education in years, type of enterprise, and family size collectively explained a significant portion of the variance in monthly turnover, which is obvious from F-statistics (6.529, $p < 0.001$). This means that if financial literacy (FLI_SCORE) increases by one unit, monthly turnover increases significantly by PKR 150,000 ($p = 0.067$). This suggests that higher financial literacy is associated with higher monthly turnover. The coefficient of

gender is negative (-30.141), suggesting that, on average, male entrepreneurs have significantly higher monthly turnover than female entrepreneurs. Education in years affected the monthly turnover positively. This suggests that more educated entrepreneurs may have higher monthly turnover. In the case of the type of enterprise, the coefficient is positive (49.280) and significant ($p = 0.007$). This suggests that the type of enterprise has a significant impact on monthly turnover, as medium enterprises' turnover is higher than that of small enterprises. The coefficient of family size is negative (-7.670) and marginally significant ($p = 0.056$). This suggests that larger family sizes may be associated with lower monthly turnover.

Overall Digital Financial Literacy

The digital financial literacy index was constructed following the methodology presented in methodology section and Table 26. Cronbach's Alpha is 83% for variables/constructs/questions included in the DFL, presenting good reliability of its construction (Sekaran & Bouge, 2016). The DFL_SCORE is a standardised variable/index based on the DFL variable, ranging between 0 and 100, where 0 means "no digital financial literacy" and 100 means "maximum digital financial literacy" levels.

Table 28: Digital Financial Literacy Score Index

DFL_SCORE	Minimum	Maximum	Mean	Std. Deviation
	7.14	100	57.098	22.507

Source: Author's calculations.

Table 29 reveals that the mean value scored by entrepreneurs on average is 57, representing the presence of a moderate level of digital financial literacy, which ranges from 7 to 100. The existence of a large spread of this index with very low and very high DFL_SCORE implies that there could be considerable gaps in financial literacy among different entrepreneurs.

Table 29 presents the result of the index DFL categorised (DFL_CAT). This index is divided into three categories, namely, low, moderate, and high levels of digital financial literacy among entrepreneurs.

Table 29: Digital Financial Literacy Category Index

DFL_CAT	No. of Entrepreneurs	Per Cent
Low digital financial literacy	49	20.7
Moderate digital financial literacy	95	40.1
High digital financial literacy	93	39.2
Total	237	100

Source: Author's calculations.

Table 29 reveals that a large majority of respondents (86%) reported low (21% of respondents) and moderate levels of financial literacy (40.1% of respondents), while 39% reported high levels of financial literacy. These findings suggest that the categories of entrepreneurs with low and moderate digital financial literacy need targeted interventions.

Gender Gap in Digital Financial Literacy

This subsection addresses the second part of the second objective of this study. Comparison of means using the independent sample t-test is presented in the table below.

Table 30: Independent Samples Test: DFL_SCORE Comparison Between Male and Female Entrepreneurs

	Gender	N		Mean	Std. Deviation		Std. Error Mean			
DFL_SCORE	Male	137		66.91	14.617		1.249			
	Female	100		34.633	12.253		1.225			
		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig	t	df	Sig (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
DFL_SCORE	Equal variances assumed	0.001	0.98	17.95	235	0.000	32.277	1.798	28.734	35.819
	Equal variances not assumed			18.448	230.47	0.000	32.277	1.75	28.829	35.724

Source: Author's calculations.

Results of independent sample t-tests in Table 30 reveal statistically significant differences in DFL_SCORE values between men and women. The DFL_SCORE mean value for male entrepreneurs is 66.91, showing a moderate to high financial literacy level. In contrast, the DFL_SCORE mean value for female counterparts is considerably low at 34, revealing a low level of financial literacy. The value of $t_{cal} = 17.95$ ($p < 0.01$) indicates that this mean difference of digital financial literacy between male and female entrepreneurs is statistically significant.

Table 31 presents the result of the index FLI categorised on an overall basis. This index presents different levels of financial literacy among entrepreneurs.

*Table 31: Digital Financial Literacy Index (Categorised) * Gender Crosstabulation*

DFL_CAT	Male (%)	Female (%)	Total (%)
Low digital financial literacy	8 (5.8)	41 (41)	49 (20.7)
Moderate digital financial literacy	36 (26.3)	59 (59)	95 (40.1)
High digital financial literacy	93(67.9)	0 (0)	93 (13.9)
Total	137 (100)	100 (100)	237 (100)

Source: Author's calculations.

Table 31 shows that all female entrepreneurs either had low digital financial literacy (41%) or moderate digital financial literacy (59%). Only 8% of male entrepreneurs had low financial literacy. In contrast, the majority of male entrepreneurs, around 68%, had high digital financial literacy, whereas not a single female entrepreneur had a high level of digital financial literacy.

Table 32 presents the strength of association between digital financial literacy and gender based on the DFL_CAT index, using different statistics.

Table 32: Association between Digital Financial Literacy and Gender

	Value	df	Asymp. Sig. (2-sided)
Pearson's chi-square	117.89	2	0.000
Likelihood ratio	153.063	2	0.000
Linear-by-linear association	108.236	1	0.000
Phi	0.705		0.000
Cramer's V	0.705		0.000
Contingency coefficient	-0.567		-0.037

Source: Author's calculations.



In Table 32, the chi-Square test results reveal a statistically significant association between the digital financial literacy (categorised) index and gender (p-value = 0.000). The linear-by-linear association value (108.236) also reveals a positive correlation between digital financial literacy and gender. Additionally, the phi coefficient (.705) and Cramer's V (.705) indicate a moderate strength of association between the two variables. The results suggest that there are significant gender gaps in digital financial literacy levels, with female entrepreneurs tending to have lower digital financial literacy, whereas their male counterparts tend to have higher digital financial literacy. These findings have implications for digital financial education and policy initiatives targeting specific gender groups.

Gender Gap in Financial Inclusion among Entrepreneurs in Faisalabad

This section addresses the third objective of the study (to evaluate the gender gap in financial inclusion among entrepreneurs in Faisalabad).

The financial inclusion index (FII) was constructed following the methodology presented in the Methodology section. Cronbach's Alpha is 87% for variables/constructs/questions included in the FII, presenting good reliability of its construction (Sekaran & Bouge, 2016). Values of FII are between 0 and 1, where 0 means "financially not included" and values close to 1 mean better financial inclusion. The FII_Dummy was standardised based on the FII index with 0-1 values, where 0 means 'financially not included' and 1 means 'financially included'.

Table 33: Financial Inclusion Index

Mean	0.688
Std. Deviation	0.245
Minimum	0
Maximum	1

Source: Author's calculations.

Table 33 reveals that the mean value scored by entrepreneurs on average is 0.69, indicating the presence of a moderate level of financial inclusion. The standard deviation is 0.245, which suggests a relatively narrow spread of FII scores.

Comparison of means using the independent sample t-test is presented below.



Table 34: Independent Samples Test: FII Comparison Between Male and Female Entrepreneurs

	Gender	N		Mean	Std. Deviation		Std. Error Mean			
FII	Male	137		0.758	0.202		0.017			
	Female	100		0.593	0.266		0.027			
		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig	t	df	Sig (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
FII	Equal variances assumed	19.091	0.00	5.433	235	0.000	0.16523	.03041	.10532	.22514
	Equal variances not assumed			5.208	176.791	0.000	.16523	.03173	.10261	.22784

Source: Author's calculations.

Since the Levene's test is equal to 19.059 ($p < 0.01$), the null hypothesis of equality of variances is rejected. This points towards the presence of a significant difference in variance between male and female entrepreneurs' level of financial inclusion. Similarly, the t-statistic result of 5.208 ($df = 177$, $p < 0.01$) shows that the difference is nearly 0.22 (females - males). The significant value of the t-test reveals that there are statistically significant differences in FII values between males and females, with male respondents having a higher financial inclusion index than females.

Table 35 presents the strength of association between financial inclusion (dummy) and gender, using different statistics.:

Table 35: Association between Financial Inclusion (Dummy) and Gender

FII_Dummy	Male (%)	Female (%)	Total (%)	
0	12 (8.8)	35 (35)	47 (19.8)	
1	125 (91.2)	65 (65)	190 (80.2)	
		Value	df	Asymp. Sig. (2-sided)
Pearson's chi-square		25.037	1	0.000
Likelihood ratio		25.23	1	0.000
Linear-by-linear association		24.93	1	0.000

Source: Author's calculations.



The chi-square test result reveals a statistically significant association between the financial inclusion (dummy) index and gender (p-value = 0.000). The linear-by-linear association value (24.93) also reveals a positive correlation between the financial inclusion (dummy) index and gender. The results suggest that there are significant gender gaps in financial inclusion, with female entrepreneurs being less included compared to their male counterparts, a large majority of whom are financially included.

Gender Gap in Financial Inclusion among Entrepreneurs in Faisalabad

This section addresses the fourth objective of this study, following the methodology presented in the methodology section. The results of the binary logistic regression are presented below.

Table 36: Binary Logistic Regression Results (Dependent Variable: FII_Dummy)

A. Omnibus Tests of Model Coefficients				
		Chi-square	df	Sig.
Step 1	Step	104.683	8	.000
	Block	104.683	8	.000
	Model	104.683	8	.000
B. Model Summary				
Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square	
1	125.947 ^a	.364	.577	

^a Estimation terminated at iteration number 8 because parameter estimates changed by less than .001.

C. Classification Table^a					
	Observed		Predicted		
			FII_Dummy		Percentage Correct
			.00	1.00	
Step 1	FII_Dummy	0	28	18	60.9
		1	9	176	95.1
	Overall Percentage				88.3

^a The cutoff value is .500

D. Variables in the Equation							
		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1 ^a	FLI_SCORE	.012	.016	.567	1	.451	1.012
	DFL_SCORE	.114	.022	27.547	1	.000	1.121
	Gender	1.591	.764	4.335	1	.037	4.911
	Age	.039	.032	1.540	1	.215	1.040
	Education	.199	.068	8.614	1	.003	1.220
	HHI	.000	.000	3.674	1	.055	1.000

D. Variables in the Equation							
	Type of enterprise	.468	.487	.924	1	.336	1.597
	Experience	-.025	.038	.424	1	.515	.975
	Constant	-10.072	2.413	17.417	1	.000	.000

^a Variable(s) entered on step 1: FLI_SCORE, DFL_SCORE, I5, I6, I8, I10, B6, B9.

E. Model Summary			
Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	136.915 ^a	.403	.601

^a Estimation terminated at iteration number 9 because parameter estimates changed by less than .001.

Source: Author's calculations.

Results presented in Table 36 reveal that the model has a good fit, with a significant chi-square value (104.683, $p < .001$). The Cox & Snell R-square value is 0.364, implying a moderate level of variance explained by the model. The Nagelkerke R-square value is 0.577, which shows a moderate to strong level of variance explained by the model.

The model suggests that DFL_SCORE, gender, and education are significant predictors of financial inclusion. The DFL_SCORE turns out to be a significant predictor ($p < .001$), with an odds ratio of 1.121. The odds ratios indicate that for every unit increase in DFL_SCORE, the odds of financial inclusion increase by 12.1%. Gender (I5) has a positive relationship with financial inclusion, but female entrepreneurs have 4.911 times the odds of being financially excluded compared to male respondents, holding all other variables constant ($p < 0.05$). In the case of education (I8), every additional year of education increases the odds of financial inclusion by 22% ($p < 0.01$). Financial literacy as well as digital literacy are prerequisites for financial inclusion (Lyons et al., 2022), as financial illiteracy has proven to be the main hurdle in achieving financial inclusion across the globe.

Furthermore, structural barriers also play a significant role in limiting women entrepreneurs' access to financial services. In Pakistan, women entrepreneurs often face challenges in accessing credit due to limited collateral options and discriminatory lending practices (Chowdhury et al., 2018). Additionally, gender biases within financial institutions can prevent women from fully participating in the financial system (Sultana et al., 2020). The country's financial policies and regulations also require a gender-sensitive approach to address the existing gaps and biases. Addressing these structural barriers is essential to promoting financial inclusion among women entrepreneurs in Faisalabad.



Policy Recommendations

The findings of this study highlight the need for targeted interventions to address the gender gap in the financial inclusion of entrepreneurs. The following policy recommendations are proposed:

Targeted Financial Education Programmes: Design and implement targeted financial education programmes for female entrepreneurs, focusing on digital financial literacy and financial management. These programmes should be tailored to address the specific needs of female entrepreneurs and should be delivered through a variety of channels, including online platforms, workshops, mentoring programmes, and vocational training.

Promotion of Digital Financial Services: Promote the development and use of digital financial services, including mobile banking and digital payment systems, and fintech solutions. This can be achieved through partnerships between financial institutions, mobile network operators, and technology companies and fintech startups.

Increased Access to Formal Financial Services: Implement policies to increase access to formal financial services for female entrepreneurs, including microfinance, small business loans, and credit facilities. This can be achieved through the development of specialised financial products and services tailored to the needs of female entrepreneurs, such as collateral-free loans and flexible repayment terms.

Mentorship and Networking Programmes: Establish mentorship and networking programmes to connect female entrepreneurs with experienced business leaders, financiers, and peers. These programmes can provide valuable guidance, support, and access to networks and resources.

Inclusive Policy Framework: Develop an inclusive policy framework that addresses the specific needs of female entrepreneurs, including access to finance, markets, technology and social services. This framework should be developed in consultation with female entrepreneurs, financial institutions, and other stakeholders.

Addressing Credit Access Barriers: Implement policies to address collateral and banking discrimination against women, such as developing specialised financial products and services for female entrepreneurs, and providing training to bank staff on gender-sensitive lending practices.

Scaling Interventions: Develop strategies to scale successful policy measures to other regions with gender disparities, through partnerships with local stakeholders, adaptation of programs to regional needs, and leveraging technology to increase reach and accessibility.

Integrating Financial Literacy into Education: Incorporate financial literacy programmes into vocational training and school curricula to equip women with essential financial skills from an early age.

Fintech and Banking Solutions: Encourage banks and fintech companies to develop inclusive financial products and services tailored to the needs of female entrepreneurs, such as mobile banking apps, digital payment systems, and online lending platforms.

Monitoring and Evaluation: Establish a monitoring and evaluation framework to track the effectiveness of these policy recommendations and make adjustments as needed.

By implementing these policy recommendations, the government and other stakeholders can help bridge the gender gap in financial inclusion among entrepreneurs and promote economic growth and development.



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PART II

HUMAN CAPITAL AND OPPORTUNITIES

Policy Briefs



UNLOCKING SYNERGIES THROUGH PUBLIC VALUE CO-CREATION: A HOLISTIC EXAMINATION OF PUBLIC-PRIVATE PARTNERSHIPS IN PUNJAB'S EDUCATIONAL LANDSCAPE

Shabana Naveed, Madiha Rehman Farooqi, and Muhammad Abdur Rehman

INTRODUCTION

Public-Private Partnerships (PPPs) have emerged as a widely endorsed model to address the global challenges of access, equity, and quality in education. In theory, PPPs enable the co-creation of public service value, as multiple actors collaboratively develop and execute innovative solutions for shared problems. This process often leads to enhanced pedagogical practices and technological integration in education, addressing gaps in underserved areas. However, the practical implementation of PPPs, especially in developing countries, reveals significant challenges. Issues such as unequal power dynamics, "cream skimming" of students, and hidden costs undermine the inclusivity and effectiveness of PPP initiatives. Moreover, donor-driven agendas in low-income countries frequently overlook local contexts,

limiting the sustainability and impact of these partnerships.

Despite extensive PPP reform initiatives in Pakistan, the country hosts the second-largest population of out-of-school children (OSC), with 26.2 million aged 6–16 not attending school (Population Census, 2023). Punjab, leading in PPP reforms through programs like PEF and PEIMA, still has 7.83 million OSC, whereas 16% of children in Punjab have never attended school, raising critical questions about PPP effectiveness in addressing the enrollment crisis and ensuring quality education.

This study critically examines the effectiveness of PPPs in Punjab's education system, focusing on access, equity, and quality. While previous research has largely concentrated on quantitative metrics, there is a pressing need for



qualitative analysis to explore governance mechanisms, inter-organisational relations, and stakeholder involvement in co-creating value-added educational services. By addressing these gaps, this study aims to provide insights into whether PPP initiatives in Punjab are effectively targeting marginalised populations and fostering meaningful learning outcomes. The findings seek to inform policymakers and stakeholders on enhancing the role of PPPs in addressing systemic challenges and promoting equitable, quality education in Pakistan.

METHODOLOGY

This study utilised a mixed-method case study research with a convergent parallel design, integrating quantitative and qualitative data to provide a comprehensive perspective by balancing the strengths and limitations of each approach.

Two PPPs, Punjab Education Foundation (PEF) and Punjab Education Initiative Management Authority (PEIMA), were taken as cases. Data was collected from diverse stakeholders, including students, parents, teachers, school administrators, PPP management, officials of the school education department (SED), and policy experts.

The study gathered qualitative data through 54 semi-structured interviews, 13 focus group discussions, and 244 open-ended survey responses. Quantitative data included SSC and LSA scores, enrollments, and dropout trends. It covered 5–7 schools per district across six districts in Punjab, representing North, Central, and South Punjab and program types (Foundation Assisted Schools (FAS), Education Voucher Scheme (EVS). Qualitative data were analysed using thematic analysis in NVivo 14.0, while quantitative data were examined through trend analysis and t-tests.

MAJOR FINDINGS

The findings highlight a complex interplay between progress and challenges in improving access, equity and quality of education through PPPs in Punjab. Quantitative and qualitative data are triangulated to understand the phenomenon holistically, covering the perspectives of diverse stakeholders.

Access to Education

Findings reveal a decline in government (SED) and PEF schools by 7.8% and 5.2%, respectively, from 2016 to 2023, while PEIMA schools quadrupled due to the transfer of underperforming government schools, rather than an actual



increase in school numbers. Enrolment trends show growth in all categories, with SED, PEF, and PEIMA reporting increases of 6.5%, 15.4%, and 420%, respectively. The percentage of out-of-school children (OSC) in Pakistan decreased from 44% in 2016-17 to 39% in 2021-22, yet the absolute number rose from 22.02 million to 26.21 million due to population growth outpacing OSC reductions. This suggests PPPs have improved access to education in Punjab, but are insufficient to address the needs of 7.8 million OSC. The apparent increase in PEIMA's school is basically a shift of government schools to PPPs, whereas little effort is made to establish new schools. Notably, the total number of government schools (including SED, PEF and PEIMA) has decreased to 60,370 schools in 2023 as compared to 61,268 in 2016.

Qualitative analysis strengthens these findings. Most schools visited in this study are operating at full capacity and cannot accommodate additional students, despite increasing demand from parents seeking admission. This indicates growing public awareness of the importance of education, but limited opportunities to access schools. Moreover, there are socioeconomic and administrative barriers to access to education, including financial struggles, complications in managing student transfers, and cream-skimming practices that limit

access for underprivileged students. Rural girls face additional barriers due to the lack of nearby schools.

Equity of Education

The findings highlight significant equity challenges in education, with net enrolment rates consistently lagging behind participation rates, showing that while many children begin schooling, significant numbers fail to transition to enrolled status. Wealth disparities are stark, with enrolment in the wealthiest group nearing 90% compared to much lower rates in the poorest group. Gender inequities persist, as male enrolment consistently outpaces female enrolment despite improvements for both. Retention rates further emphasise wealth-related inequities, with dropout rates for the poorest students peaking at 12%, while wealthier groups exhibit significantly lower dropout rates.

Qualitative data reveal that schools face significant challenges in promoting equity. The inclusive education program introduced by PEF failed due to insufficient resources, inadequate infrastructure, and a lack of commitment. Many schools struggle to accommodate students with disabilities, leading to their exclusion. A majority of schools also fail to support slow learners, primarily due to pressures to



complete the curriculum and stringent passing criteria. While the Ehsaas Program has provided financial assistance to labouring families, addressing the needs of over-aged child labourers remains a challenge due to behavioural issues stemming from their prior work experiences. Furthermore, the monitoring mechanisms employed by PEF and PEIMA lack evaluation criteria for ensuring equitable education. As a result, schools are not incentivised to support minority and marginalised groups.

Quality of Education

The study highlights an increase in enrolment despite a decline in the number of schools, leading to overcrowded classrooms in SED and PEF schools and concerns about education quality. Teacher qualifications are a critical factor, with 84% of surveyed teachers (in PEF and PEIMA schools) having less than 14 years of education, indicating a limited pool of highly qualified educators. Comparative performance data (under Large Scale Assessment) show that SED schools (68%) outperformed PEF (65%) and PEIMA (61%) in Grade 5 assessments in 2022, with SED schools and PEF schools performing equally by 2024 (66%), while PEIMA schools lagged (58%). Despite fewer qualified teachers, PEF schools deliver comparable outcomes at lower costs.

A t-test analysis reveals PEF students scored significantly higher (mean: 81.35) than government school students (mean: 76.94) in SSC results, emphasising the efficiency of PEF schools. The Quality Assurance Test (QAT) is a rigorous mechanism to monitor education quality in PEF and PEIMA schools, but the tough passing criteria often require long hours, leaving little room for extracurricular activities. Strict verification and monitoring processes further strain schools, with penalties for minor infractions.

CHALLENGES AND OPPORTUNITIES

The data reveals both challenges and value addition in the context of PPPs in education. *Communication is top-down*, with schools seldom involved in decision-making, and concerns raised by schools are often ignored. PEF and PEIMA exert significant control over school operations, leaving schools with little autonomy in decision-making. Delayed payments, insufficient provision of books, frequent fines, and late responses to queries are causing *operational frustrations*. PPPs have conflictual relations and a lack of trust with partner schools. Schools feel mistrusted and misunderstood, perceiving PEF and PEIMA as treating them as mere compliance entities rather than equal partners. Limited technological integration in schools



restricts pedagogical innovation and the use of modern teaching tools. Persistent communication gaps exist among stakeholders, including the community, parents, schools, and PPP management. Notably, the community and parents are largely disengaged from students' education.

Despite challenges, PPPs have fostered value creation by increasing education access in urban slums through the EVS program and in rural areas via the NSP. School principals have embraced roles as social mobilizers, actively promoting education within communities, leading to higher enrollment and stronger community support.

POLICY IMPLICATIONS

The study recommends the following measures to enhance the access, quality, and equity of education in Punjab:

Address the shortage of school facilities.

The government policy is mainly focused on shifting the non-performing public schools to PEIMA, whereas the enhancement in the current infrastructure and establishment of new schools have not received much attention. Notably, the total number of schools (including SED, PEF, and PEIMA) has

decreased over the period of time, presenting an alarming situation to handle enrollment crises.

Action steps:

- ▶ The government needs to increase the number of PEF schools, particularly in EVS and NPS programmes, to cater to the marginalised and underprivileged population.
- ▶ The strategy of shifting non-performing schools to PEIMA should be continued.
- ▶ The infrastructure of current schools should be enhanced to accommodate more students.

Improving Teacher Qualifications and Compensation

Teacher qualifications and expertise are critical areas for improvement in PEF and PEIMA schools. Currently, most teachers have only a matriculation or intermediate qualification, and their pay is below Pakistan's minimum wage, raising serious concerns about the quality of education in these institutions.

Action Steps:

- ▶ PPP management should raise the minimum qualification for teachers in PPP schools to at least a bachelor's degree in education or a related field.



- ▶ The government should ensure that teacher salaries are aligned with Pakistan's minimum wage.
- ▶ PPP management should implement teacher training programs focusing on modern pedagogical techniques, digital literacy, and inclusive education practices.
- ▶ Establish a teacher certification process to ensure quality standards.

Holistic Definition of Quality Education

Currently, PEF and PEIMA have too much focus on student grades and school enrollment. They need to incorporate factors like teacher qualifications, student engagement, and extracurricular activities in the quality metrics of PPP schools. Currently, creativity and critical thinking are largely absent in schools. Exams prioritise rote memorisation over critical analysis, and teachers focus primarily on completing the syllabus, leaving little room for extracurricular activities.

Action steps:

- ▶ PPP should develop a balanced QAT that evaluates not just academic outcomes but also the holistic growth of students.
- ▶ PPP should provide separate funds to schools for

extracurricular activities such as art, music, and sports.

Revision in Per-Child Fee

The current fee (PKR 650 per primary student) is too low to provide quality education. The per-child fee needs to be enhanced considering the inflation rate in the economy.

Action Steps:

- ▶ The government should increase the budget of PEF and PEIMA
- ▶ PPP management needs to expedite alternate sources of funding, engaging private sector donors to contribute to the provision of education under their corporate social responsibility (CSR) initiatives.
- ▶ PPP management should increase the per-child fee based on a realistic calculation.
- ▶ PPP schools should enhance the compensation of teachers.

Strengthening Partnerships and Trust

The relationships between PPPs and partner schools are largely strained, conflictual, bureaucratic and lack trust. Representation of partner schools in policy matters is largely absent.



Action steps:

- ▶ PPP management should establish bi-annual forums for stakeholder feedback and collaboration.
- ▶ Appoint a dedicated liaison officer for every cluster of PPP schools to address grievances and foster trust.

Parental Awareness and Community Engagement

Parents are largely ignorant and less concerned about the quality of education provided to their children. PPP schools can play a major role in reaching out to the parents and community to enhance awareness of education and the importance of their involvement.

Action steps:

- ▶ PPP management and PPP schools should organise community events and workshops to educate parents on the value of quality education.
- ▶ Develop parent-teacher committees to bridge the communication gap and encourage parental involvement.

Enhancing Inclusivity in Education

PEF and PEIMA should mandate that schools reserve a specific quota (e.g., 10%) for marginalised students, including those from low-income backgrounds and disabled. Redesign the admission criteria to focus on a mix of performance potential, socio-economic background, and special needs, rather than solely on performance metrics.

Action Steps:

- ▶ PPP management should conduct equity audits annually to evaluate the implementation of the inclusivity quota.
- ▶ PPP management should allocate budget for infrastructure catering to marginalised groups (e.g., ramps, special classrooms, assistive technologies, and provision of tools such as audio-visual aids and wheelchairs).
- ▶ PPP management should develop and monitor separate attendance and QAT performance criteria for marginalised and disabled students.



- ▶ PPP schools should not restrict the school's entry through admission tests.
- ▶ Conduct teacher training programs on the integration of technology in classrooms.

Investment in Technological Infrastructure

Schools lag in the use of technological innovation in teaching methodologies. Schools need to introduce technology-based learning tools, such as smartboards, and online resources.

Action steps:

- ▶ Allocate a dedicated budget for purchasing and maintaining technological equipment.

- ▶ PEF and PEIMA school teachers should be included in the Prime Minister's laptop distribution scheme.

In order to foster transparency and trust between the schools and the governing bodies, biometric attendance devices must be installed in PEF and PEIMA schools. This technology will allow students to record their attendance every day using biometrics, guaranteeing automatic data updates and reducing the possibility of errors and manipulation.



AN IN-DEPTH STUDY OF JOB SATISFACTION AMONG WOMEN TRANSITIONING FROM TRADITIONAL LABOUR MARKET ROLES TO ONLINE JOBS IN PAKISTAN

Sumaira Yasmin and Iqra Karamat

INTRODUCTION

Pakistan is growing through a labour market change as modern technology and growing online job markets continue to reshape the employment landscape. Flexibility and autonomy define today's changing labour markets, which provide people with better choices to manage their work and personal lives. Women are benefiting more from this shift because it provides them with an opportunity to enter the labour market, which was previously difficult because of numerous challenges, such as societal expectations, labour market discrimination, and limited access to education.

Pakistan's freelance economy is among the fastest-growing in the world, with a reported 69% growth rate (Payoneer). Online employment provides Pakistani women with an alternative to traditional jobs because it enables them to work

from home. It also gives them financial independence and diverse professional opportunities. However, despite this promising trend, gender disparities in labour force participation persist in Pakistan. While women make up 48.4% of the population, only 14% receive education beyond Grade 12, and their workforce participation remains significantly lower than that of men (UN Women, 2023).

A detailed analysis of how Pakistani women's satisfaction changes when they transition to online employment is vital for a deeper understanding of the issue. Job satisfaction depends on multiple elements, such as compensation, work-life balance, career advancement opportunities, job security, and workplace culture (Inayat & Jahanzeb Khan, 2021). The COVID-19 Pandemic has triggered changes in employment. With the evolution of telework being one of the most dominant trends, many



women have found increased satisfaction in remote work due to greater flexibility and autonomy (Alassaf et al., 2023).

This policy brief examines the factors influencing job satisfaction among women in Pakistan, focusing on the transition from traditional roles to online employment. It explores the challenges and opportunities of this shift, assesses its impact on job satisfaction, and offers recommendations for organisations and policymakers to improve job satisfaction in both traditional and online workplaces. Addressing these issues is critical for advancing gender equity, fostering economic growth, and ensuring that Pakistani women can fully benefit from the evolving job market. The findings of this study can contribute to labour policies, digital literacy programmes, and workplace inclusion strategies, ultimately promoting a more equitable and productive workforce in Pakistan.

METHODOLOGY

This study, on which this policy brief is based, used Schlossberg's transition theory to explore the experiences of Pakistani women transitioning from on-site to online jobs, focusing on self-awareness, situational factors, support networks, and coping mechanisms. For the quantitative part of the study,

an online survey was conducted using Google Forms. The questionnaire had questions with 5-point Likert scale responses. The qualitative part assessed job satisfaction factors such as flexibility, stress, and work-life balance. In addition to the primary survey data, the Labour Force Survey 2021 was used to support the findings and to check for sample bias.

Using snowball sampling, 95 women transitioning to online jobs and 45 women in traditional roles were sampled. Quantitative data analysis is based on descriptive statistics. The approach provides a detailed understanding of the factors shaping women's job satisfaction in evolving labour markets.

FINDINGS

Demographic Trends and Employment Patterns

The survey revealed the expanding presence of young female workers in digital labour markets. Women between 18 and 25 years were the largest demographic group in the sample (44.12%), 20% of whom were working online. Women in the age group of 26–32 were working in both digital and on-site roles, which is perhaps because of a changing work environment that requires experienced professionals. The analyses showed that marital status



plays a key role, as unmarried workers (63.16%) selected online work as their first option because flexibility was a defining factor for them.

Educational Background and Sectoral Distribution

Employment opportunities in both sectors positively relate to higher education attainment. The data shows that more than 60% of employees possessed at least sixteen years of formal education. The majority of workers in both on-site and online roles had MPhil degrees at 62.22% and 63.16%, respectively. Graduates with 10–12 years of education encounter substantial difficulties when trying to enter positions that require specialised digital skills in online work. Social sciences dominated employment (48.78% on-site, 46.31% online), while computer science was more prevalent in online jobs (8.42%), reflecting demand for technical expertise.

Income Disparities and Economic Preferences

Online jobs offer a higher average income (PKR 69,863.16) compared to on-site roles (PKR 50,577.78), though earnings are less predictable. Women in online roles benefit from reduced commuting costs (47.85%) and work-related expenses (42.85%), making these jobs

financially attractive. However, on-site jobs provide greater long-term security through benefits like pensions (13.33%) and health insurance (19.99%). These trade-offs highlight different worker priorities—flexibility versus financial stability.

Work Flexibility and Job Satisfaction

Online jobs provide significant autonomy, with 44.21% reporting flexible hours compared to rigid schedules in on-site roles (35.6%). Despite this, 77.89% of online workers reported improved work-life balance, compared to only 31.1% in on-site jobs. Structured routines in on-site roles appeal to those who prioritise stability, while online work enables better family and childcare management.

Stress and Workplace Satisfaction

On-site jobs are associated with higher stress, with 26.7% reporting extreme stress versus 15.16% among freelancers. More relaxed work environments contribute to lower stress for online workers (38.94% report low stress). However, interpersonal interactions in on-site jobs foster stronger workplace cohesion, leading to higher satisfaction (71.11% vs. 68.4% overall).



Employment Transitions and Policy Implications

A strong interest in transitioning to online jobs exists, with 50.53% of government employees and 37.8% of on-site workers considering the shift. While on-site workers (35.6%) express concerns over income stability, online jobs attract those seeking autonomy and higher pay. Unmarried women prioritise financial independence, while married women value stability, aligning with economic theories of risk aversion and labour-leisure trade-off.

POLICY RECOMMENDATIONS

Based on the study findings, several targeted policy recommendations are proposed to address the challenges and needs of women in online and on-site work environments. Firstly, enhancing digital skill development is essential. Targeted training programmes should be established, particularly for women with lower educational backgrounds, to improve digital literacy and employability in online jobs. Collaborations with private sector stakeholders, educational institutions, and NGOs can provide accessible, affordable, and practical skill-building courses. Additionally, developing online training platforms with localised language support and tailored content can help reduce digital literacy gaps, particularly in

rural areas. Partnerships with NGOs and government agencies to provide free or subsidised internet access and devices for training purposes would further support this initiative.

Promoting flexible work policies and hybrid job models is another important step. Encouraging businesses to adopt hybrid work models that offer flexibility while ensuring income stability can enhance women's participation in online employment. Workplace policies supporting work-life balance, particularly for married women managing family responsibilities, should be prioritised. Flexible hours, remote work options, and phased work arrangements are essential to making online work more accessible. The proposed freelancer social protection fund (FSPF) can enhance stability by providing health insurance, pension plans, and financial security to online workers, ensuring their economic well-being. Ensuring social security and benefits for online workers is also vital. Establishing an FSPF to provide health insurance, pension plans, and income stability through voluntary contributions and government co-funding can significantly enhance the financial security of online workers. Additionally, introducing digital labour welfare cards to provide access to financial benefits, tax incentives, and microloans for online workers would be a progressive step.



Facilitating legal recognition of freelancers and fostering partnerships with digital platforms, along with integrating fintech services, can further improve worker protections and economic stability. Facilitating market access and financial inclusion for women requires enhancing online employment platforms and promoting Pakistani digital freelancers in international markets. IT service providers and digital firms should support female digital entrepreneurs through mentorship, resources, and funding opportunities. Expanding microcredits, tax incentives, and training programmes can help women online workers manage fluctuating earnings and enhance their financial resilience. Addressing cultural barriers and promoting digital opportunities is critical to fostering an inclusive digital economy. Awareness campaigns featuring successful female digital entrepreneurs as role models can help shift cultural perceptions about women's participation in online work. Community engagement programmes targeting families and local leaders can address societal concerns, while gender sensitivity training in digital literacy programmes can challenge stereotypes and promote inclusivity.

Policy discourses and workshops involving stakeholders are essential to addressing cultural barriers and emphasising the economic benefits

of women's online employment. Infrastructure development is another priority. Providing reliable internet access, affordable technology, and secure online platforms is necessary to support women's participation in the digital economy. Collaborations between government agencies, private sector firms, and NGOs can help bridge infrastructure gaps, particularly in rural and underserved areas. Monitoring, data collection, and policy implementation are essential for ensuring the effectiveness of these recommendations. Establishing monitoring systems to deter exploitation within digital employment sectors and protect workers' rights is critical. Periodic labour market assessments and time use surveys can guide region-specific strategies and address time poverty. Collaboration between the National Economic Transformation Unit (NETU), government bodies, private sector stakeholders, NGOs, and educational institutions is necessary to ensure effective policy implementation.

These proposed policies contribute to the E-Pakistan, Equity, and Empowerment, and Exports (5E) pillars of the Uraan Pakistan framework by promoting digital transformation, social justice, and economic growth. Increasing women's participation in digital work and enhancing their skills can boost exports by expanding IT services, e-commerce, and digital



entrepreneurship. Their involvement in freelancing, online businesses, and knowledge-based services strengthens Pakistan's IT export sector and promotes cultural exports. Additionally, hybrid work models can enhance productivity and export potential. Implementing these policy recommendations within the Uraan Pakistan framework can create a more inclusive and resilient digital economy. By empowering women

through hybrid job models, enhancing digital literacy, promoting equitable income distribution, and ensuring social protection, Pakistan can effectively advance its economic transformation goals.

It is also recommended that Pakistan's existing databases, such as PSLM and other relevant national surveys, be improved and unified to include data specifically related to women's online employment.



THE FUTURE OF WORK IN THE MOUNTAINS: AN EXPLORATION OF THE FREELANCING LANDSCAPE IN GILGIT-BALTISTAN

Mehfooz Ullah and Attaullah Shah

INTRODUCTION

Pakistan faces significant economic challenges, including high unemployment and limited job creation, particularly in remote and underdeveloped regions like Gilgit-Baltistan (GB). This mountainous region, bordering China, is characterised by limited arable land, a lack of industrial infrastructure, and economic isolation from major urban centres, hindering traditional job creation despite its potential in sectors like tourism and mining. While GB claims a high literacy rate, employment opportunities beyond the public sector, private banking, and a few NGOs remain scarce, leading to rising unemployment among educated youth and an urgent need for alternative economic opportunities.

The gig economy and online freelancing have emerged as promising employment options across Pakistan, offering educated

youth the chance to engage with the global economy by leveraging their digital skills (Raza, 2023). In the context of GB, freelancing is increasingly viewed as a vital opportunity for young people who wish to remain in the region rather than migrate for work. However, despite many interventions in this sector, GB lacks a structured, evidence-based approach to promoting freelancing as a sustainable livelihood option for educated youth. While some organisations and programmes are working to impart freelancing skills, their effectiveness is uncertain, often misaligned with market demands, and focused on a few typical skills at the expense of other globally in-demand opportunities. Furthermore, government interventions, financial support mechanisms, and donor-funded programmes often lack strategic direction and evidence-based interventions, leading to unsatisfactory outcomes.



No formal and concerted research has surfaced to date that assesses the viability of existing programmes on freelancing, their impact on promoting freelancing in GB, analyses the existing ecosystem or determines the most effective framework for promoting freelancing as a viable economic opportunity in this isolated and economically underdeveloped region. In this context, this study aims to address this critical research gap by systematically evaluating the impact of the National Freelance Training Program (NFTP), the first, most significant, and successful formal initiative to promote freelancing in GB. Through this evaluation, the study seeks to understand the regional context, real-time challenges, and existing freelancing ecosystem to identify effective strategies and policy measures for supporting and scaling freelancing in GB. Ultimately, this research aims to ensure that future interventions are evidence-based, contextually relevant, and aligned with global freelancing trends.

To achieve this overarching goal, this research focuses on the following specific objectives:

- To assess the impact of the NFTP on promoting online freelancing in GB.
- To explore the current freelancing landscape in GB.
- To propose policy recommendations for promoting freelancing in GB.

METHODOLOGY

This study employed a mixed-methods approach to comprehensively investigate the freelancing landscape in GB and evaluate the impact of the NFTP. The research was conducted in two distinct phases. Phase one consisted of a quantitative survey designed to assess the impact of the NFTP. The target population comprised the 813 individuals who had officially graduated from the NFTP, fulfilling all programme requirements. While the NFTP had trained over 1400 individuals, only these 813 graduates were included in the survey, as their data were readily accessible. Survey questions were developed in close collaboration with the NFTP team. Data enumerators contacted all 813 graduates via mobile phone to administer the survey. The collected data were analysed using descriptive statistics and are presented in the form of tables and graphs.

Phase two involved qualitative data collection through focused group discussions (FGDs) and in-depth interviews. The qualitative part aimed to triangulate the quantitative findings from the survey and provide thorough insights into the



freelancing landscape in GB. Participants were selected based on their expertise and involvement in the NFTP and the broader GB freelancing ecosystem. A total of two FGDs, each with 6 to 8 participants, and eight in-depth interviews were conducted. The qualitative data collected were explicitly designed to explore key insights emerging from the survey data, allowing for a deeper understanding of GB's contextual challenges and broader freelance ecosystem. The insights gained from this qualitative data have been integrated into the study's findings and discussion section, providing a more context-focused and comprehensive analysis of the research findings.

FINDINGS AND CONCLUSIONS

The section uses a research triangulation approach, integrating quantitative survey results with qualitative insights from interviews and focus group discussions. Findings were categorised into four themes, presented to participants for further discussion and contextualised through supporting questions and relevant literature. This rigorous approach cross-verified survey outcomes, refined interpretations, and captured the real-world dynamics of GB's freelancing landscape. The resulting analysis provides a nuanced understanding of NFTP's

impact, identifies key factors influencing GB's freelancing ecosystem, and informs evidence-based policy recommendations for strengthening and expanding freelancing opportunities. The key findings are as follows:

- Freelancing appears to be a ray of hope for the educated GB's youth, as evidenced by NFTP's high graduation rate (58%). Given the limited traditional employment opportunities, it's seen as a socio-economic equaliser, especially given the underperformance of sectors like tourism and mining. While NFTP's success is clear, many graduates initially pursue freelancing part-time due to market instability. Long-term success often necessitates entrepreneurial skills and transitioning from individual freelancing to building businesses. Therefore, while freelancing offers opportunities, sustained success requires an entrepreneurial approach to be developed among freelancers.
- NFTP's success stems from expert trainers with real-world freelancing and entrepreneurial experience, offering practical platform exposure. However, GB's broader training landscape is problematic. Despite numerous programmes, quality control and standardisation are



lacking. The trainers themselves are not formally trained, and programmes are failing to impart practical, job-oriented skills. Mentorship, platform navigation, client acquisition, and real-time project execution are often missing.

- While the majority of the responses support government prioritisation of freelancing, some question its long-term viability. Freelancers face challenges like limited access to finance, networking, and digital infrastructure. They want the government to provide greater recognition, targeted skills development, and improved digital infrastructure, including reliable internet, financial assistance, and co-working spaces. Government initiatives, such as soft loans and high-tech training, have limitations in scope and inclusivity. Infrastructure problems, including limited internet and power outages, hinder freelancer success.
- Strong support exists for incorporating freelancing courses into regular academics in HEIs to equip students with basic and advanced freelancing skills to improve the chances of employability at an early stage, which is particularly important in regions with limited

opportunities like GB. While beneficial, integrating these courses raises concerns about micro-credentials reshaping higher education, potentially prioritising job alignment over broader learning. There are concerns that universities will be transformed into job-training centres. However, ignoring the great potential of the gig economy, particularly in youth-dominated countries, will have economic consequences. Therefore, a balanced approach is necessary, integrating freelancing courses without sacrificing broader academic learning.

In conclusion, this study highlights the significant potential of freelancing to address youth unemployment in GB. The high NFTP graduation rate underscores the growing interest in this alternative economic career path. However, translating this potential into sustainable livelihoods requires addressing several key challenges found in the current freelancing ecosystem. These include improving the quality and relevance of freelancing training programmes, nurturing entrepreneurial skills, and providing comprehensive support systems, including mentorship and access to resources. Likewise, overcoming digital infrastructure limitations, particularly regarding internet connectivity and power



supply, is essential. Government intervention is vital for creating an enabling environment through targeted policies, financial support, and digital infrastructure development. By strategically addressing these challenges, GB can leverage freelancing to empower its youth, boost economic resilience, and integrate the region into the global digital economy.

KEY POLICY RECOMMENDATIONS

- a. The findings of this study underscore the need for a proactive government approach to strengthen the freelance sector in GB. Addressing key barriers through policies that enhance skills development, digital access, and financial inclusion can enable freelancing to become a major contributor to regional economic growth. A structured and forward-looking strategy would generate employment opportunities for educated youth, integrate GB into the national and global digital economy, and promote long-term economic resilience.
- b. To ensure a structured and sustainable freelancing ecosystem, a dedicated Freelancing Unit should be established within the GB IT Board. This unit should operate under a multi-stakeholder governance framework that includes representation from academia, the private sector, NGOs, experienced freelancers, and policymakers.
- c. The proposed unit should certify training providers to ensure quality and relevance, coordinate initiatives across various sectors to avoid duplication, and monitor programme effectiveness. It should also maintain a comprehensive freelancer database to support evidence-based policymaking, develop linkages with global freelancing platforms to expand market access, and represent freelancers' interests in digital economy strategies. Acting as a central coordination platform, the unit would align GB's freelancing initiatives with global trends and promote sustainable digital employment opportunities.
- d. The government should establish Smart Freelancing Hubs (SFLHs) across GB focused on demand-driven skill development and hands-on mentorship. These hubs should offer training in high-demand freelancing skills through an apprenticeship model under experienced freelancers. Existing schools and colleges can be utilised in the second shift to minimise infrastructure costs,



with resources directed toward improving digital connectivity, power supply, and training facilities rather than new construction.

- e. A blended learning approach should be adopted for all training initiatives conducted through SFLHs and other institutions. Certified trainers should serve as facilitators, while course content is delivered through recognised online platforms such as Coursera or Google Certificates. Training should also emphasise essential soft skills, including job search strategies, professional communication, profile optimisation, and client engagement, to prepare freelancers for global market challenges.
- f. To support the growth of the freelance economy, the government should introduce a dedicated loan and grant scheme. The first category should target individual freelancers requiring essential tools such as laptops, internet connectivity, and power backup, while the second category should support freelance entrepreneurs seeking to establish small firms. Financial assistance should be provided through low-interest loans and donor-supported grants, facilitated by partnerships with banks and development organisations operating in GB.
- g. The traditional IT courses in colleges and universities should be replaced with a foundational course on digital skills and freelancing, particularly within social sciences and humanities departments. This initiative would provide students with early exposure to digital platforms, remote work tools, and online marketplaces, enabling them to pursue alternative career pathways beyond conventional employment.



TECHNOLOGY ADOPTION IN FEMALE ENTREPRENEURS: IMPACT ASSESSMENT OF TDAP WOMEN DEVELOPMENT PROGRAMME

Misbah Tanveer

INTRODUCTION

Women account for half of the population in Pakistan, but their economic participation is not very promising. Female entrepreneurship is even more severely lacking in Pakistan. It ranked 142nd out of 146 countries in the Global Gender Index in 2023, with economic participation and opportunities for the poorest in the world (Figure 1). Not just entrepreneurship, but female labour force participation is one of the lowest in the world, ranking 167 out of 178 countries in 2023 (Figure 2). Moreover, as of 2016, only 25% of female university graduates joined the workforce (Source: Asian Development Bank). Another dimension of gender disparity in the business landscape is the wage

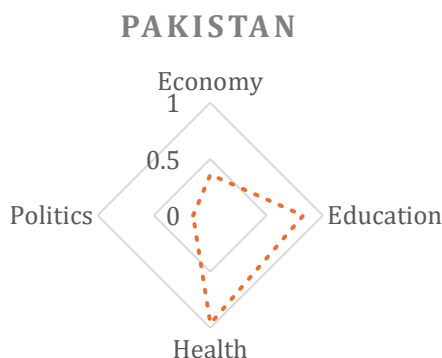
difference, with women's median monthly pay being only PKR 12,000 compared to PKR 18,600 for men in 2023 (International Labour Organization). Therefore, it is easy to see that the conditions of gender parity in Pakistan leave much to be desired.

There is a marked lack of governmental data on female entrepreneurship in Pakistan. However, according to the Global Entrepreneurship Monitor (GEM), only 5% of the total number of entrepreneurs in the country were females as of 2012. In the same vein, a survey conducted by the World Bank revealed that there are only 1% female entrepreneurs for every 21% male entrepreneurs in 2022.



Figure 1: Global Gender Index 2023

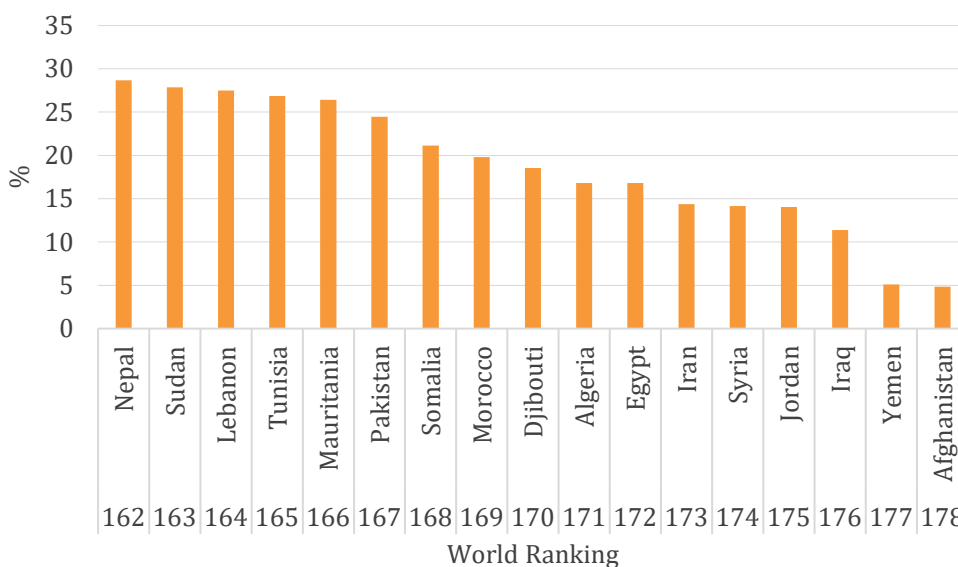
Pakistan: Global Gender Index Report



	2023		2022	
Index and Sub-index	Score	Rank	Score	Rank
Global Gender Gap Index	0.575	142	0.564	145
Economic Participation and Opportunity	0.362	143	0.331	145
Educational Attainment	0.825	138	0.825	135
Health and Survival	0.961	132	0.944	143
Political Empowerment	0.152	95	0.156	95

Source: WEF (2024).

Figure 2: Female Labour Force Participation – 2023



Source: Globaleconomy.com (n.d.).



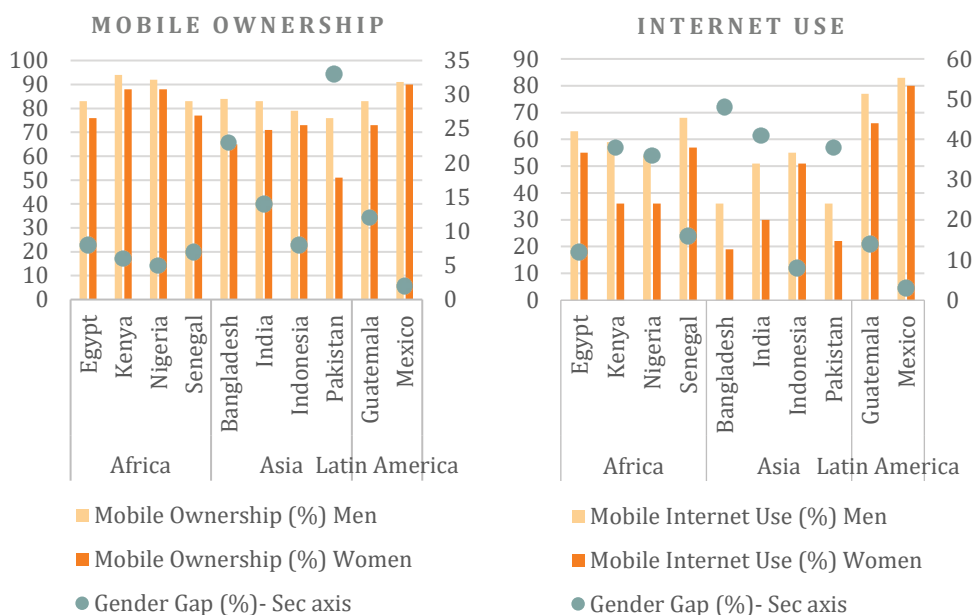
DIGITAL SKILLS FOR FEMALE ENTREPRENEURS

As discussed, women's economic empowerment is less than ideal. However, this problem is caused and further exacerbated by the lack of women's access to digital tools and services. After all, if they are not afforded the same level of knowledge, their positions as entrepreneurs are not expected to be at the same level as their gender counterparts. As per the UNDP, in 2023, only 50% of women own a mobile, as opposed to 81% of men. Similarly, women are 45% less likely to use mobile internet than men. The GSMA Consumer Survey in 2021 shows similar statistics (Figure 3). The GSMA Survey also revealed that only 49% of the Pakistani women

who considered work an essential part of their lives thought owning a mobile phone helped them in their work. In contrast, 81% of men thought owning a mobile phone was helpful in their work. This clearly shows that women face challenges in leveraging technology in their work. These challenges may be digital literacy, socioeconomic norms, and resource access.

In addition, there are barriers to using the internet. In Pakistan, the main reasons for not using the internet are literacy and digital skills for both males and females. However, the second most important reason for males and females is different, with women facing family disapproval and men finding it irrelevant (Table 1).

Figure 3: Mobile Ownership and Internet Use by Gender – 2021



Source: GSMA (2023).



Table 1: Top Barriers to Internet Usage – 2021

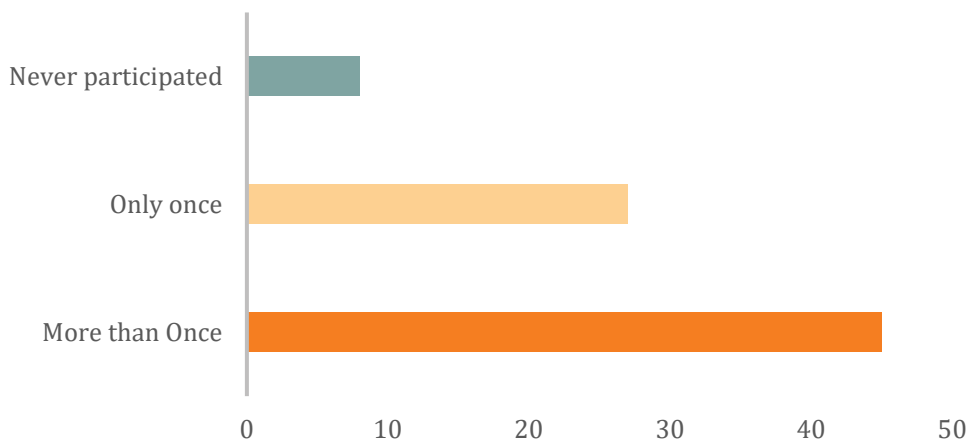
Ranking	Bangladesh		India		Indonesia		Pakistan	
	Women	Men	Women	Men	Women	Men	Women	Men
1	Literacy and digital skills	Literacy and digital skills	Literacy and digital skills	Literacy and digital skills	Afford-ability	Afford-ability	Literacy and digital skills	Literacy and digital skills
2	Safety and security	Safety and security	Afford-ability	Afford-ability	Literacy and digital skills	Safety and security	Family disapp- roval	Releva- nce
3	Afford-ability	Afford-ability	Releva- nce	Safety and security	Releva- nce	Literacy and digital skills	Releva- nce	Afforda- bility

Source: GSMA (2023).

We adopted a mixed-method approach to assess the role and impact of digital enablement on women micro-entrepreneurs. Focus groups and round table discussions were conducted with various stakeholders. For quantitative analysis, an extensive survey was

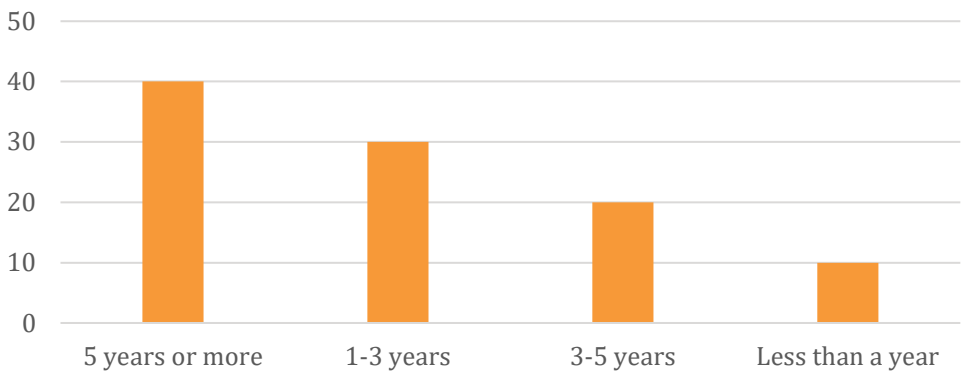
conducted among the women microentrepreneurs who attended the digital skills training of WEDP (after 1 year). The results showed the efficacy of the digital skills training programmes, which are illustrated using the following figures.

Figure 4: Participation in Workshops



Source: Tanveer (2025).

Figure 5: Entrepreneurial Experience

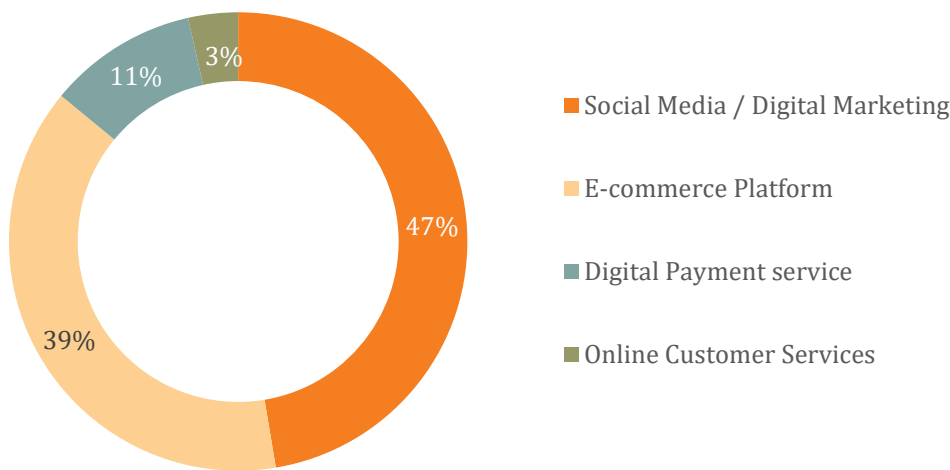


Source: Authors' computations based on the study's primary survey data.

Figures 4, 5, and 6 show the basic demographic profile of the female microentrepreneurs who participated in the WEDP program; most had attended the digital skills training and were experienced entrepreneurs.

Figure 6 shows they have attended multiple training courses emphasising social media marketing.

Figure 6: Type of Digital Training Received



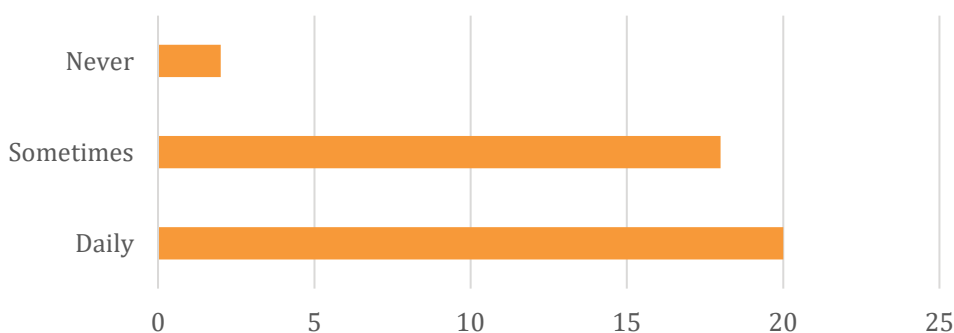
Source: Authors' computations.



Figures 8 and 9 show the impact of these trainings on the utilisation and improvement of digital skills to improve their business. As is evident, most of the participants reported increased utilisation of digital tools and services. Similarly, they are more

confident about their digital skills, reporting an increase in how they rate their digital skills, with a decreased number of low ratings and an increased number of high ratings after attending the training session(s).

Figure 7: Utilisation of Skills Learned



Source: Authors' computations.

Figure 8: Training Impact on Skills Improvement



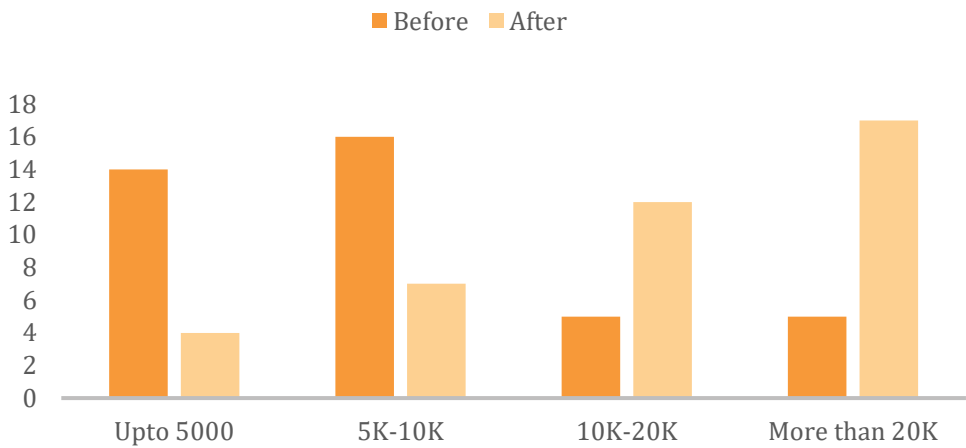
Source: Authors' computations.

Figures 10 and 11 show quantifiable results of the efficacy of the digital skills training sessions. As illustrated, profit and sales show a marked increase due to digital skills

attainment. Their sales and outreach have increased significantly through e-commerce platforms and social media marketing.



Figure 9: Change in Profits Following Training



Source: Authors' computations.

Figure 10: Change in Sales Following Training



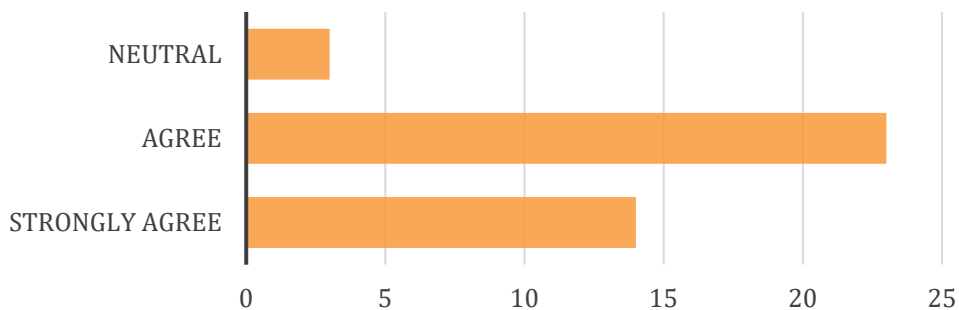
Source: Authors' computations.

The impact of training sessions on forming social capital through increased confidence, their role in family decisions, access to a support network, self-reliance, and improved mental health are equally important.

Figure 11 highlights the integration of participants into support networks. Similarly, participants also reported improved mental health following the sessions (see Figure 12).

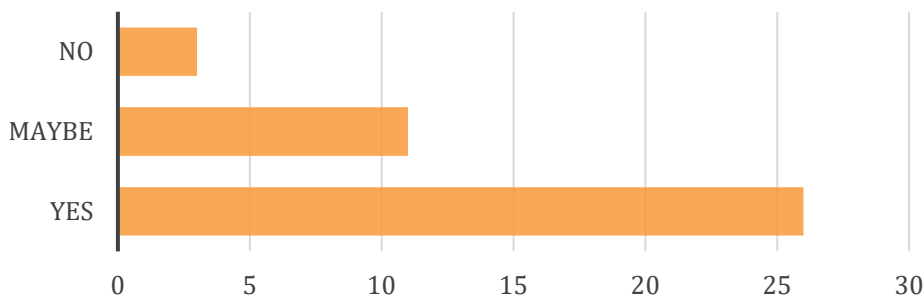


Figure 11: Impact of Training on Support Networks



Source: Authors' computations.

Figure 12: Impact of Training on the Mental Health of Participants



Source: Authors' computations.

Although there is considerable research on the intersection between women's entrepreneurship and digital technology, there is a marked lack of such primary-level research in Pakistan. Therefore, the following are policy prescriptions based on the survey results and the roundtable discussion with stakeholders.

Multi-Agency Cooperation

The networking between stakeholders is inadequate, resulting in isolated efforts for women's

entrepreneurship. There is an urgent need for stakeholders to collaborate, pool resources, and strengthen the advocacy networks in Pakistan to support and promote women's entrepreneurial endeavours more effectively.

Switching from Traditional Methods

Women in Pakistan are generally time-poor due to their responsibilities, so strategies must move away from traditional forms of training. This means innovative



solutions must be adopted, such as speech-based assistance in apps, including speech-based AI chatbots in local languages, and curated training videos that can be shared via WhatsApp, allowing women microentrepreneurs to watch them at their convenience.

Training of Male Community Members

Men must also be trained to truly progress in women's entrepreneurship development. This can mean training community leaders, such as religious or local political leaders. The objective is holistic social development that will gradually but steadily pave the way forward for women microentrepreneurs.

Emphasis on Family Planning

Family planning must be central to all efforts involving women in Pakistan. Given the sociocultural norms of Pakistan, women's entrepreneurship cannot progress in an isolated environment, which makes it necessary to address other factors that heavily influence women's entrepreneurship simultaneously.

Comprehensive Policies

Efforts towards entrepreneurship seem isolated as 'events' rather than whole programmes. It is

commendable, but the implementation is lacking. Therefore, contingencies, follow-ups, and feedback mechanisms must be built into policies to achieve maximum value and make these trainings more effective.

Further Research and Data Collection

There is a need to collect more data on the determinants of digital enablement and strategies for long-term improvement to empower women in Pakistan. Furthermore, investment in research will help understand the specific technological needs and challenges and help design customised training programmes accordingly.

Awareness Campaigns

Launching comprehensive awareness campaigns is crucial for highlighting the benefits of technology adoption among women. To reach a broad audience, these campaigns should leverage various media channels, including social media, radio, television, and community outreach programmes. Such initiatives will demystify technology and build a supportive community where women feel encouraged to explore and integrate technological solutions into their entrepreneurial ventures.



Online Platforms for Market Access

Just as training should move away from traditional methods, so should market access platforms for women

entrepreneurs. User-friendly e-commerce platforms tailored for women should be developed to allow them to showcase and sell their products effectively.



A STUDY ON IMPLICATIONS OF GENDER GAP IN DIGITAL FINANCIAL LITERACY AND FINANCIAL INCLUSION FOR WOMEN ENTREPRENEURS IN PUNJAB, PAKISTAN

Tahira Saddaf

INTRODUCTION

Financial inclusion plays a vital role in bringing about economic development, and the role of entrepreneurs in this regard is essentially crucial. However, this study reveals that female entrepreneurs in Punjab, Pakistan, face significant barriers to financial inclusion due to their lower levels of financial literacy and digital financial literacy when compared to their male counterparts. Based on evidence found in research on financial literacy, financial inclusion, and the gender gap, this policy brief addresses these gaps and provides insights for improving financial inclusion among female entrepreneurs in Punjab.

METHODOLOGY

This study followed a mixed-methods approach. It combined both qualitative and quantitative methods of data

collection and analysis. The study used secondary data from the World Bank's Global Findex Database to get an overall picture of financial inclusion at the Pakistan level. Another secondary data source, i.e., the Pakistan Social and Living Standards Measurement (PSLM) survey, was used for the selection of respondents. Primary data were collected through a survey of entrepreneurs in Punjab, using a structured questionnaire. The sample consisted of 237 entrepreneurs, selected through a multi-stage sampling technique. A survey questionnaire was administered to a sample of 137 male entrepreneurs and 100 female entrepreneurs. The questionnaire collected data on financial literacy, digital financial literacy, and financial inclusion. Descriptive statistics, independent samples t-tests, and binary logistic regression analysis were used to analyse the data.



FINDINGS

The following findings were reached in this study:

- 1) Gender Gap in Financial Literacy: Female entrepreneurs in Punjab have lower levels of financial literacy when compared to male entrepreneurs.
- 2) Digital Financial Literacy: Female entrepreneurs have lower levels of digital financial literacy, which limits their ability to get financially included and access digital financial services.
- 3) Financial Inclusion: There is a gender gap in financial inclusion, with female entrepreneurs being less likely to be financially included than male entrepreneurs.
- 4) Education and Experience: Education and experience have a statistically significant effect on the financial inclusion of entrepreneurs.
- 5) Association between Digital Financial Literacy and Financial Inclusion: There is a statistically significant positive association between Digital Financial Literacy and financial inclusion among entrepreneurs, with a marked gender gap.

CONCLUSIONS AND KEY POLICY RECOMMENDATIONS

The findings of this study highlight the need for specially designed interventions to address the gender gap in financial inclusion among entrepreneurs in Punjab, Pakistan. The following policy recommendations are proposed:

- 1) Targeted Financial Education: There is a dire need to design and implement targeted financial education programmes for female entrepreneurs, focusing on digital financial literacy and financial literacy.
- 2) Digital Financial Services: Promote the development and use of digital financial services, including mobile banking and digital payment systems.
- 3) Access to Formal Financial Services: Implement policies to increase access to formal financial services for female entrepreneurs, including microfinance and small business loans.
- 4) Mentorship and Networking: Establish mentorship and networking programmes to connect female entrepreneurs with experienced business leaders and financiers.



- 5) Inclusive Policy Framework: Develop an inclusive policy framework that addresses the specific needs of female entrepreneurs, including access to finance, markets, and technology.
- By implementing these policy recommendations, the government and other stakeholders can help bridge the gender gap in financial inclusion among entrepreneurs in Punjab, Pakistan, and promote economic growth and development.

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- 2022-2025 1st – 5th RASTA Conference Papers (90)
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The *RASTA – PIDE & Planning Commission Competitive Research Grants Programme* is an extensive economics and public policy research funding programme in Pakistan. Its mission is to build a robust national research network connecting academia, think tanks, and policymakers to generate high-quality, evidence-based research that informs and improves public policy in Pakistan.

Today, the RASTA Network comprises over 500 universities and think tanks, 30+ international institutes, 27 government organizations, and a community of more than 9,500 researchers, practitioners, and professionals.

The Competitive Grants Programme (CGP) is RASTA's flagship initiative. Through biannual open calls, the CGP invites research proposals/ideas on specific policy themes identified by the Research Advisory Committee (RAC). Awards are made through a rigorous, transparent, and merit-based review process.

Anyone with a research interest in Pakistan's public policy challenges aligned with the CGP's announced themes can compete and secure a grant. To date, RASTA has funded 120 research projects across eight CGP rounds, with a total value of PKR 327 million — strengthening Pakistan's policy research ecosystem like never before.

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