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SOCIO-ECONOMIC PROFILING OF THARI WOMEN ARTISANS WITH SPECIAL FOCUS ON FINANCIAL INCLUSION AND DIGITAL AWARENESS

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Abstract

This paper examines the socio-economic profiling of women artisans in the province of Tharparkar, Sindh, with a special focus on financial inclusion and digital awareness issues. However, despite the government's efforts, women artisans in rural Pakistan still lack access to formal financial infrastructure and digital platforms. The researcher will be interested in revealing the impact of education, age, marital status, and location on the financial and digital inclusion of these women. The study employed a descriptive and correlational research design, incorporating a cross-sectional survey conducted between January and March 2025. The sample of 355 women artisans was selected through convenience and snowball sampling in Mithi and Diplo, which are the two most important artisan clusters in Tharparkar. The results were recorded using a semi-structured questionnaire and analyzed in SPSS version 26, employing descriptive statistics, Pearson correlations, and regression models. Findings indicate that education has a great influence in enhancing financial and digital inclusion, whereas marital status and old age have a contrary impact. The issues of market accessibility and financial shortage were defined as the most serious ones. The main point of the study is age. According to these findings, the study proposes solutions such as enhancing literacy among rural women, planning local and virtual networking events, and providing digital and financial training designed to break the structural barriers. The present baseline analysis lays the foundation for any possible policy change and further studies to enable Thari women artisans economically.

Keywords: Socio-Economic Profiling, Women Artisans, Financial Inclusion, Digital Awareness, Microenterprises.

Introduction

The world economy is increasingly focusing on microenterprises, rural entrepreneurship and the artisan industry. Rural non-farm entrepreneurship is considered a more productive prospect for growth and poverty reduction (Haggblade, Hazell, & Reardon, 2010; Lewis, 1955). With the realisation of enterprising as an engine of economic growth and prosperity, researchers have also focused on female participation as having a long-term and sustainable impact. In this context, with low labour force participation rates among women in Pakistan and a declining cultural heritage, women artisans can play a multifaceted role in the country's economic development (Grimes & Milgram, 2000). Few studies discuss rural artisans, their problems and challenges and their role in economic development (Dev, 2006; Garai & Shadrach, 2006; Pye, 1988). However, no study has focused on the artisans from

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Pakistan except for a few baseline descriptive studies on their profiling. (TRDP, 2011). There is. A significant literature gap exists regarding the challenges faced by artisans in Pakistan and the factors contributing to these challenges. This study aims to bridge the knowledge gap by providing a socio-economic profile of women artisans from Tharparkar. Secondly, the study will also analyse the challenges and problems faced by Thari Women Artisans. Finally, the study will examine the relationship between socio-economic profiling and two major challenges: low financial inclusion and digital awareness.

Rationale

The niche in which women artisans in Pakistan operate is both strategic and risky: they preserve cultural heritage, earn a living for their families, and contribute to achieving the Sustainable Development Goals concerning gender equity and poverty alleviation. However, several researchers testify that the negation of bargaining power, market penetration, and resilience of artisans is systematic due to low rates of financial inclusion and digital literacy (Razzaq et al., 2024; Salman, Rauf, & Murtaza, 2024). Recent experience in the Thar and Rajasthan deserts of India suggests that targeted digital marketing interventions can increase sales by 35 percent within six months, even among semi-literate craftswomen (Ibrahim & Ojha, 2025). Collectively, these results emphasize the importance of defining the relationship between socio-economic characteristics and the manner in which they influence digital and financial participation, so that development initiatives can be specifically tailored.

Problem Statement

Even after a decade of policymaking, the number of rural craftswomen in Pakistan with formal bank accounts is below one in seven women (Razzaq et al., 2024) and below one in five who market their wares online (Razzaq et al., 2024). These gaps have been persistent and indicate the failure of generic programs, such as the "banks-the-unbanked" or "train-the-trainer" type schemes, to consider any artisan-specific limitations to their implementation, which are primarily the lack of mobility, gender norms, and low digital literacy levels (Sharmila, 2024). Unless this issue is addressed through a nuanced, empirically informed perspective on these obstacles, well-meaning programs are likely to end up duplicating, rather than diminishing, existing disparities.

Research Questions

- What is the socio-economic background of the female artisans of Tharparkar district of Sindh?
- What are the major work-related challenges to Thari women artisans?
- What impact do the socio-economic characteristics have on the financial inclusion of women artisans among the Thari people?
- What are the socio-economic characteristics of digital awareness of Thari women artisans?

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Research Objectives

The study has the following specific research objectives:

- To develop a Socio-Economic Profiling of Women artisans in Tharparkar district of Sindh.
- To identify work challenges faced by Thari women artisans.
- To study the impact of socio-economic traits on the financial inclusion of Thari women artisans.
- To study the impact of socio-economic traits on the digital awareness of Thari women artisans.

Theoretical Framework

The study integrates two complementary lenses:

- **Sen's Capability Approach**: Positions digital awareness and financial inclusion as instrumental freedoms that enable artisans to convert their craft skills into economic and social well-being (Razzaq et al., 2024).
- **The Unified Theory of Acceptance and Use of Technology 2 (UTAUT-2) explains** variance in digital-tool adoption through performance expectancy, effort expectancy, social influence, facilitating conditions, and hedonic motivation (Venkatesh et al., 2012). Recent artisan-focused adaptations confirm the relevance of UTAUT-2 in low-literacy craft communities (Ibrahim & Ojha, 2025).

Literature Review

There are very few studies that incorporate data from Tharparkar, especially when it comes to discussions of Thari Women Artisans. This section will first explain the socio-economic standing of Tharparkar as a district. Later sections will explore the literature on artisans and the challenges they face, and the final two sections will discuss the literature on the determinants of two major challenges: financial inclusion and digital awareness.

Tharparkar District

Tharparkar district in Southeastern Pakistan covers an area of 19,638 square kilometres (Census, 2017). It is an extensive region of sandy desert, bounded on the northwest by the River Indus, on the west by the Indus Valley, on the south by the salt marsh known as the Rann of Kutch, and spans the border with India on the east. The desert mainly consists of gently sloping sand hills with rock extensions and scattered shrub growth.

According to the 2017 census, the total population of District Tharparkar is 1,649,661, with 46.5% females and 92% rural settlements (Census, 2017).

Tharparkar district is one of the least developed areas of Pakistan, with an HDI of 0.227 and an MPI of 0.481(UNDP, 2015).

Low indicators of human development, scant rainfall and reduced water resources are some of the features of Thar's economy. The most common occupations in Thar include agricultural labor, peasants, tenants, herders, artisans, businesspeople, and landlords. Similarly, the Thari people's income mainly comes from agricultural labor, construction labor, livestock sales, and crop sales (Suthar, Sarki, Qureshi, Solangi, &Mangan, 2016).

Thari Women Artisans

Thari art and embroidery are unique and represent the rich culture and tradition of Sufi saints. The women in Thar learn this art at an early age, as it is a tradition passed down through generations. We were unable to find any literature that explains the socio-economic profile of Thari Women Artisans. Although one study by a local NGO reported the profile of the nearby district of Umerkot, this study is based on in-depth interviews of 30 artisans.(TRDP, 2011)Thus, the Current study is the first of its kind to report the profiling of Thari women artisans based on a sample size of 355.

The beautiful art of these artisans is liked both locally and internationally. Unfortunately, this occupation lacks proper marketing and linkages, and thus, it holds only 7% of the Thari occupation pie chart (Suthar et al., 2016). Moreover, a significant portion of the income from selling these beautiful art pieces goes into the pockets of intermediaries. There is a dire need to save this dying culture, not only to protect Pakistan's cultural heritage but also to improve the living standards of these Thari women, which in turn can enhance the region's and ultimately the country's human development indicators.

Challenges Faced by Artisans

This sector is a technology, fragmented and predominantly labour-intensive sector. This beautiful art is passed down through generations and serves as a source of employment for these artisans and others in society. The major issues and barriers faced by artisans in general include a lack of connection with local and international markets, the unavailability of raw materials, product modifications, operations management, distribution channels, the use of information and communication technology (ICT) tools, access to financial resources, and health and education issues.(Venkataramanaiah & Nidugala, 2016). The study aims to identify the specific challenges faced by Thari women artisans and then analyze financial inclusion and digital awareness in detail.

Digital Awareness

In this era of globalisation and information society, information and communication play vital roles not only in the sustainable development of enterprises in urban areas but are equally important in rural areas.(Amponsah, 1995; Koutsouris, 2010)However, it must be acknowledged that the digital connection to rural areas remains a challenge, and even in areas where digital technologies are being adopted,

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their implementation is still limited.(Hall, Dunkelberger, Ferreira, Prevatt, & Martin, 2003). Furthermore, the adoption rate of mobile and internet services is even lower among females in rural regions.(De Silva, Ratnadiwakara, & Zainudeen, 2009)Digital awareness and adoption of these technologies have been a research question, and many studies have identified various factors that influence the probability of mobile and internet adoption. Rice and Katz compared mobile phone owners with non-owners. They found that lower income, lower education, being single, not having children, and not working full time decrease the probability of using mobile phones.(Katz & Shapiro, 1986). Chabossou analyzed the probability of adopting digital technology and found that income and education significantly enhance mobile adoption, while gender and age are not significant factors. Ficant (Chabossou, Stork, Stork, & Zahonogo, 2008). In Pakistan, there are 73.3% mobile users and only 13.8% internet users (Worldbank, 2016). However, internet usage is growing, as Pakistan's advertising society reported 18% of the population using the internet in January 2017. Pakistan also follows the global trend of slow digital diffusion in rural areas and a gender gap in digital awareness. The current study aims to analyze various socio-economic factors and their impact on the digital awareness of women artisans in the Tharparkar district.

Financial Inclusion

The second major issue is the low level of financial inclusion among artisans. The World Bank defines financial inclusion as "Financial inclusion means that individuals and businesses have access to useful and affordable financial products and services that meet their needs – transactions, payments, savings, credit and insurance – delivered responsibly and sustainably. Financially included individuals are those who have an account in their name with a full-service financial institution." Full financial services refer to institutions that offer savings, credit, money transfers, insurance, and investment; thus, they exclude institutions that do not provide a full range of services, such as microfinance banks. Full-service financial institutions encompass banks, mobile money service providers, and non-bank financial institutions, including deposit-taking microfinance institutions (MFIs) and financial cooperatives. atives(FII, 2017).

Many researchers emphasise the importance of financial inclusion in the growth process. Financial inclusion enables individuals to contribute to the growth process and poverty reduction in two ways. Increased financial inclusion enhances the probability of higher access to education and employment.(Aghion & Bolton, 1997; Galor & Zeira, 1993) Secondly, access to financial resources improves resource allocation, thus reducing income inequality and poverty. uction (Kakwani, 2000).

The Government of Pakistan launched its Financial Inclusion Strategy in May 2015, aiming to financially include 50% of the population by 2020. To achieve this ambitious goal, several technical committees are working towards this strategy. The major steps taken in the last two years include: focus on expanding financial inclusion through branchless banking and mobile money, allowing mobile money operators to issue pre-paid cards, and the introduction of the third-party service provider (TPSP) model, which allows all the banks and mobile network operators to serve each other's customers.(FII, 2017)

The data from the Pakistan Access to Finance Portal 2015 can be used to assess the financial inclusion status in Pakistan:

Table 01: Financial Inclusion Status in Pakistan					
	Financially included	Banked	Formal others	Informal	Excluded
All adults	47%	16%	7%	24%	53%
Gender					
Male	51%	21%	8%	22%	49%
Female	43%	11%	6%	26%	57%
Location					
Urban	50%	14%	8%	28%	50%
Rural	39%	9%	5%	25%	61%
Province					
Sindh	39%	8%	4%	26%	61%
Punjab	45%	11%	8%	26%	55%
Baluchistan	23%	7%		5%	77%
KPK				24%	76%

(Source: The Financial Inclusion Status in Pakistan (Source: Pakistan Access to Finance Portal, 2015)

Table 01 provides an overview of the percentage distribution of financially included individuals across various demographics in Pakistan, including gender, location (urban vs. rural), and provinces (Sindh, Punjab, Balochistan, Khyber Pakhtunkhwa). It highlights the disparities in financial access between different groups and regions within the country.

The latest details about financial inclusion in Pakistan can be observed in the FII Wave 4 report.

Table 02:The Financial Inclusion Status in Pakistan (Source: Financial Inclusion Insights, 2017	
	Formal Bank accounts
All adults	9%
Male	13%
Female	5%
Urban	12%
Rural	7%

The data from Financial Inclusion Insights (2017) reveal that only 9% of all adults in Pakistan have a formal bank account, indicating a very low level of financial inclusion. A significant gender gap is evident, with 13% of men having bank accounts compared to just 5% of women, reflecting limited access to formal financial services for women. Similarly, a clear urban-rural divide exists, with 12% of the urban population holding bank accounts, compared to only 7% of the rural population. These figures highlight the unequal distribution of financial access across

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different segments of society, with women and rural residents facing more barriers to entering the formal banking system.

Studies have investigated the role of financial inclusion, its determinants and its impacts (Shahbaz & Islam, 2011; Zulfiqar, Chaudhary, & Aslam, 2016). None of the studies seems to analyse the financial inclusion level of a particular district, specifically Tharparkar. This study aims to analyze the various socio-economic factors and their impact on the financial inclusion of women artisans in the Tharparkar district.

This study aims to create a demographic profile of Thari women artisans, identify their challenges, and analyze their digital awareness and financial inclusion behavior, thereby establishing a baseline for researchers and development economists.

Research Methodology

The research design employed in the study is quantitative, comprising a descriptive research design and a cross-sectional research design, to investigate the impact of socio-economic characteristics on digital awareness and financial inclusion among women artisans in Tharparkar, Sindh. It is structurally designed in such a manner that the observed and collected numerical data is centered on one time, which allows for the analysis of a correlation between two or more variables through statistics. The methodology has been framed in the following elements:

Research Design

This research is descriptive, as it aims to describe the socio-economic background of Thari women artisans and assess their level of digital awareness and financial inclusion. It is even correlational in the sense that it studies the association between socio-economic characteristics (including education, age, marital status, and location) and the dependent variables, which are digital awareness and financial inclusion.

The methodology applied was a cross-sectional survey, collecting data within a set time frame (January-March 2025), which is most suitable for studying the status quo rather than tracking developments over time.

Study Area

The study was conducted in Tharparkar District, situated in the southeastern corner of the Sindh Province, Pakistan. The region is mainly rural, characterized by expansive deserts, low literacy rates, and inadequate infrastructure. The two study sites (Talukas, namely—Mithi (urban-rural mixture) and Diplo (rural predominant)) were chosen because of the presence of active crafts groups and also because the NGOs and women's cooperatives of that area have direct access to the study sites.

Target Population

The study's sample consisted of women artisans aged 18 and above who actively participated in handwork, including embroidery, mirror work, patchwork,

and appliqué. Such women typically support the household income through their artisanal activities, and they are commonly referred to as community-based or small-scale informal operations.

Sampling Technique

Non-probability sampling methods were employed for the following reasons:

- Convenience Sampling: Artisans were easily approached by NGOs and community centers in Mithi and Diplo.
- Snowball Sampling: The first individual selected invited others in their network, thereby increasing the sample organically within the local community.

The strategy helped resolve issues associated with the unavailability of databases and Tharparkar's scattered settlement pattern.

Sample Size

Among the more than 500 women artisans approached during the fieldwork, 355 accepted the invitation to participate in the experiment and complete the entire questionnaire. This sample size was deemed appropriate for statistical analysis and also satisfied the requirements of a regression and correlation-based study that consists of numerous variables.

Data Collection Instrument

The questionnaire was self-administered and semi-structured, prepared in both Urdu and Sindhi to facilitate understanding of the concept. Data were collected through this designed questionnaire. The questionnaire had six parts as follows:

1. Socio-economic and demographic facts
2. Experience and trade skills
3. Sources of income and manual production: Craft production
4. Online consciousness and access to gadgets
5. Financial services: access to bank, wallet, savings
6. Problems and support system

The instrument was piloted on a sample of 20 artisans in Nangarparkar to refine and check language sensitivity. The feedback allowed for changes that made the text clearer and eliminated ambiguous points.

Data Collection Process

The data were recorded by trained female enumerators who were fluent in the local languages. Face-to-face interviews were also conducted at homes or community centres when a majority of the respondents were present. Where literacy

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levels are low, enumerators accompanied the respondents, asked questions, and recorded their answers.

All participants observed ethical research principles, provided informed consent and participated voluntarily. The anonymity and confidentiality of personal data were guaranteed.

Data Analysis Techniques

- Version 26 of SPSS (Statistical Package for the Social Sciences) was used to enter and clean the data. Inferential and descriptive statistics were applied:
- Descriptive Analysis: Frequencies, percentages, means, and standard deviations were calculated to create socioeconomic profiles.
- Correlation Analysis: Pearson correlation coefficients were calculated to assess the relationships between socioeconomic characteristics and financial and digital inclusion.
- Regression Analysis: Multiple linear regression models were used to investigate how independent variables (education, age, marital status, and geography) predict digital awareness and financial inclusion.

Ethical Considerations

The study complied with ethical standards:

- Informed Consent: All participants provided written or verbal consent after being made aware of the study's objectives.
- Voluntary Participation: Participants were guaranteed the freedom to leave at any time without incurring any fees.
- Confidentiality: Data was stored securely, and personal information was protected through encryption.
- Cultural Sensitivity: Interviews were conducted by female enumerators in culturally suitable environments for them.

Analyses and Interpretations

The following section will analyse the study's results. The first section presents the descriptive statistics of the socio-economic profile of Thari women artisans. The next section will analyse the challenges faced by these women. Finally, two major challenges of Digital Awareness and financial inclusion will be explained using econometric models.

Socio-Economic Profiling of Women Artisans in Tharparkar District of Sindh

Education

The data revealed that Thari women artisans are barely educated, as 86% of them received no formal education. At the same time, only 4% were able to complete matriculation. (Figure 1). It should be noted that as per the PSLM survey 2014-15, in Tharparkar district, only 22% of the females ever attended schools and only 15% were able to complete primary or higher education, as compared to 56% of the males that ever attended the school and 42% that completed primary or higher. This shows a clear gender disparity in the region. (PSLM, 2014-15)Furthermore, this literacy ratio is even lower among artisans compared to other women, according to the sample. Although their education and literacy skills were quite low, even among those with no formal education, 86% were able to perform basic arithmetic operations, whereas 10% were able to use calculators and perform all four basic mathematical operations.

Table 03: Education Status

Education Level	Frequency	Percentage (%)
No Formal Education	275	86%
Primary	25	7.8%
Middle	2	0.6%
Matric (Matriculation)	13	4%
Other	7	2.2%
Total	322	100%

This table shows that the majority of respondents—**86%**—have no formal education, highlighting a significant educational gap among the population surveyed. Only 7.8% had reached the primary level, and an even smaller percentage completed the **middle (0.6%)** and **matriculation (4%)** levels. A marginal **2.2%** fall into the "other" education category. These figures indicate very limited access to education, which may impact employment opportunities, income levels, and financial literacy among the respondents.

Age

Table 04: Age Distribution

Age Group (Years)	Frequency	Percentage (%)
≤ 15	5	1.4%
16 – 30	90	25.4%
31 – 45	167	47.0%
46 – 60	76	21.4%
61+	17	4.8%
Total	355	100.0%

The age distribution reveals that the largest proportion of respondents, **47%**, fall within the **31–45 years** age group, followed by **25.4%** in the **16–30 years** range.

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Another **21.4%** are aged **46–60 years**, while the older group, aged 61 years and above, comprises **4.8%**. The youngest group (15 years or younger) makes up only **1.4%**. This distribution shows that most respondents are of working age, indicating the potential of this group to contribute economically if provided with suitable opportunities and resources.

Marital Status of Respondents

Table 05: Marital Status	
Marital Status	Percentage (%)
Married	91%
Single	4%
Widow	5%
Total	100%

According to this table, a significant majority—**91%**—of the respondents are **married**, while only **4%** are **single** and **5%** are **widowed**. This suggests a highly family-oriented population where marital status might influence household roles, responsibilities, and decision-making dynamics, especially in rural or traditional contexts.

Household Size and Number of Children (n = 341)

Table 06: Household Size and Number of Children		
Category	Frequency	Percentage (%)
Household Size: 1–5 members	160	47.0%
Household Size: 6–10 members	174	51.0%
Others	7	2.0%
Average Household Size	–	6 persons
Number of Children (Range)	–	0–9 children
Average Number of Children	–	4 children
Total	341	100%

The household size data indicates that **51%** of respondents live in households with **6–10 members**, while **47%** have **1–5 members**, and **2%** fall in the "others" category. The **average household size** is **6 persons**, and the **number of children per household** ranges from **0 to 9**, with an **average of 4 children per household**. These large household sizes reflect traditional family structures and may place economic strain on families, especially when resources and income sources are limited.

House Ownership Status

Table 07: House Ownership Status	
Ownership Type	Percentage (%)
Not owned by the respondent	44.0%
Owned by the male family head	39.5%
Others	16.5%
Total	100.0%

This table shows that **the respondents do not own 44% of houses**, while **39.5%** are owned by a **male family head**, and **16.5%** fall under **other** ownership arrangements. The relatively low rate of personal ownership suggests a lack of asset security and long-term economic stability for many households, particularly among women who may have limited control over property.

Housing Structure Type

Table 08: Housing Structure Type	
Housing Type	Percentage (%)
Cuccha	75.0%
Cuccha-Pakka	23.0%
Pakka	2.0%
Total	100.0%

Table 08 presents the types of housing structures in which the respondents live. The data shows that a significant majority, 75%, reside in cuccha houses, which are made from temporary materials such as mud, thatch, or unbaked bricks. These structures are not durable and are highly vulnerable to weather and environmental conditions. Another 23% live in cuccha-pakka houses, which are semi-permanent structures built using a mix of temporary and durable materials. Only 2% of the respondents live in pakka houses, which are permanent constructions made from solid materials like cement, bricks, and concrete. This distribution highlights the poor housing conditions and lack of infrastructural development among the surveyed population, indicating their limited economic means and increased exposure to vulnerabilities related to housing safety and stability.

Challenges faced by Thari Women artisans:

Like other artisans in the country, Thari women artisans face many challenges at work. The study attempts to identify these challenges and rank them in order of their intensity.

Table 09: Challenges faced by Thari Women artisans		
Challenges	Percentage	Rank
Access to market	62.7%	1
Unavailability of finance	14.8%	2
No frequent orders	11.4%	3
Low per-piece rate	4.8%	4
Shortage of raw material	3.4%	5
No support/ recognition from family	2%	6
Affects daily household work	1%	7

Housing data reveals that **75%** of the respondents live in **cuccha (mud or temporary)** houses, **23%** in **cuccha-pakka (semi-permanent)** structures, and only **2%** in **pakka (concrete or permanent)** houses. These figures indicate poor living

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conditions and a lack of durable housing, which can directly impact the health, safety, and quality of life of the surveyed population.

The results show that the biggest challenge faced by these women is access to local and international markets. This disconnect can be attributed to the limited mobility of women in these areas and low digital awareness. Most women are not allowed to move outside their area, use mobile phones or computers, and thus are unable to connect physically or digitally to the markets. The reasons for low digital awareness will be explored in detail in the later sections. The second significant challenge is the lack of financial resources. However, many government and non-government agencies have initiated interest-free and easy loan schemes specially targeted towards rural women's empowerment. However, limited financial inclusion of Thari artisans hampers their access to finance. Financial inclusion and its determinants are discussed in detail in the later sections.

The third challenge is the low frequency of orders, which can be indirectly attributable to a disconnect from the market. Low per-piece rate is another challenge. The exploitation by the middleman leaves very little for the artisans, and thus, they are paid very low for their hard work. This challenge is ranked 4th, but a detailed interview with the respondents revealed that these innocent artisans are even unaware of the actual selling prices of their products. Again, this is attributable to their disconnect from other areas in general and markets in particular. Another challenge is the shortage of raw materials in terms of variety and quality, which hinders adaptation and product modification. Very few women considered support from family and work-life balance a challenge. The analysis highlights that the majority of these challenges are the result of either low digital awareness or low financial inclusion. The next section will explore these two problems in greater detail.

Financial Inclusion and Socio-Economic Traits

The study follows the World Bank definition of a financially included individual as “Financially included individuals are those who have an account in their name with a full-service financial institution.” Full-service financial institutions include banks, mobile money service providers, and nonbank financial institutions, such as deposit-taking microfinance institutions (MFIs) and financial cooperatives(FII, 2017).

This section examines various socio-economic characteristics and their impact on the likelihood of being financially included. We used the probit estimation model, introduced by Chester Bliss in 1934. It is a binary response model used with a binary dependent variable, as in this case. Financial inclusion can have one of two values: 1 for having an account and 0 for not having an account. The model uses the maximum likelihood method of estimation.

The following model is estimated using the Probit estimation technique.

$$FI_i = \alpha^* EDU_i + \beta^* MS_i + \gamma^* AGE_i + \delta^* AGE2_i + \rho^* LOC_i + \varepsilon_i$$

In the above equation, the independent variable is financial inclusion, which is explained by four dependent variables: education, marital status, age and location. Table 10 shows the details of the variables.

Table 10: List of Variables		
Variable Name	Variable Label	Variable Definition
Dependent Variables		
FI	Financial Inclusion	0= no account 1= have an account
Independent variables		
EDU	Education level	1= no formal education 2 = Primary 3 = Middle 4 = Secondary 5 = Higher
MS	Marital status	0 = Single 1= married
AGE	Age	Age in number of years
AGE2	Square of Age	Square of age
LOC	Location	0 = rural 1 = urban

Table 11: Regression Analysis	
Variables	(1) Financial Inclusion
Education	0.492***(0.173)
Marital Status	-0.731**(0.327)
Age	-0.149***(0.0257)
age2	0.00194***(0.000379)
Location	0.544(0.454)
Observations	288
Robust standard errors in parentheses	*** p<0.01, ** p<0.05, * p<0.1

Table 11 presents the results of a regression analysis designed to understand the factors influencing financial inclusion. The findings indicate that education has a positive and statistically significant effect (coefficient = 0.492, $p < 0.01$), suggesting that individuals with higher levels of education are more likely to be financially included. **Marital status** has a **negative and significant** effect (coefficient = -0.731, $p < 0.05$), indicating that married individuals are less likely to be financially included compared to unmarried individuals. **Age** has a **negative and highly significant** effect (coefficient = -0.149, $p < 0.01$), but when squared (age^2), it has a **positive and significant** effect (coefficient = 0.00194, $p < 0.01$). This illustrates a U-shaped relationship between age and financial inclusion, where inclusion initially decreases with age and then increases after a certain threshold is reached. The **location** variable has a **positive** but **statistically insignificant** effect (coefficient = 0.544), meaning that the region where a person lives does not have a strong or reliable impact on financial inclusion in this model. The model includes **288 observations**, and robust standard errors were used to ensure the reliability of the estimates.

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The results above indicate that the probability of being financially included increases with higher levels of education. The coefficient for education is significant. These results align with previous studies, which indicate that financial inclusion is lower among females due to lower literacy rates and the prevalence of male dominance. inance(Demirgüç-Kunt, Klapper, & Singer, 2013; Fungacova & Weill, 2014; Zulfiqar et al., 2016).

Similarly, marital status is also a significant factor in explaining the probability of being financially included. It is negatively related, indicating that being married reduces the likelihood of being financially included.

Additionally, as the regression results indicate, age is negatively associated with financial inclusion, suggesting that an increase in age decreases the likelihood of being financially included. This result contrasts with various studies. (Zins & Weill, 2016; Zulfiqar et al., 2016)The reason could be the high percentage of older women in the sample. Older females in Tharparkar are less likely to be aware of financial services, as the diffusion of financial services in the Region is still in its initial stages.

To sum up, we can say that being educated, unmarried and younger increases the probability of financial inclusion. Location does not seem to affect the financial inclusion of Thari women artisans. The pseudo R-squared of the model is quite low, indicating that the above variables are insufficient to explain the probability of being financially included. This clearly illustrates the omitted variable bias, and it should be addressed by including additional variables. In the available literature, income percentiles are widely used to explain financial inclusion. However, due to the limited availability of data on income, this variable was excluded from the current study. The next phase of data collection will incorporate this limitation, and subsequent research may cover this gap.

Digital Awareness and Socio-Economic Traits

This section analyses the digital awareness status of the respondents and their socio-economic traits. The digital awareness status of the women artisans was assessed based on some questions related to the use of mobile phones, the internet, and social media apps. The participants were then given a score between 1 and 15. The OLS estimation model is used to assess the influence of different socio-economic traits on the digital awareness of these Thari women artisans. The following regression model was used:

$$DA_i = C + \alpha^* EDU_i + \beta^* MS_i + \gamma^* AGE_i + \delta^* GC_i + \rho^* LOC_i + \tau^* KID_i + \varepsilon_i$$

In the above equation, the independent variable is digital awareness, which is explained by five dependent variables, as they are most widely used in literature.(Adamides, Stylianou, Kosmas, & Apostolopoulos, 2013; Chabossou et al., 2008; Katz & Shapiro, 1986)These variables are education, marital status, age, general competency, number of kids and location. Table 6 details the variables.

Table 12:Variables used to analyze Digital Awareness		
Variable Name	Variable Label	Variable Definition
Dependent Variables		
DA	Digital Awareness	The value can range between 1 and 15
Independent variables		
EDU	Education level	1= no formal education 2 = Primary 3 = Middle 4 = Secondary 5 = Higher
MS	Marital status	0 = Single 1= married
AGE	Age	Age in number of years
GC	General Competency	Value can vary between 1 and 15
KID	No. of kids	Number of kids of the respondent
LOC	Location	0 = rural 1 = urban

OLS regression results are shown in Table 13. The results show that all the included variables are significant in explaining the digital awareness, and this is in line with various studies (Chabossou et al., 2008; De Silva et al., 2009; Katz & Shapiro, 1986)The model's R-squared value is 0.423, indicating that these variables are insufficient to explain the variance in digital awareness. As mentioned earlier, the lack of data on income prevented us from using the income variable. Future studies may attempt to fill in this gap.

Table 13: Regression Analysis	
Variables	(1) DA
Education	1.930***$_{(0.287)}$
Marital Status	-3.087***$_{(0.903)}$
Age	-0.0586***$_{(0.0148)}$
General competency score	0.121**$_{(0.0549)}$
Location	1.170***$_{(0.322)}$
Number of kids	0.102$_{(0.0833)}$
Constant	5.001***$_{(1.293)}$
Observations	274
R-squared	0.423
Robust standard errors in parentheses	*** p<0.01, ** p<0.05, * p<0.1

The regression analysis presented in Table 13 explores the impact of various factors on the dependent variable DA. The results indicate that education has a strong positive effect, as individuals with higher education levels tend to have higher DA scores. In contrast, marital status has a negative influence on DA, indicating that married individuals tend to have lower DA scores compared to unmarried individuals. Age also has a negative impact, suggesting that as individuals grow older, their DA slightly decreases. The general competency score shows a moderate positive relationship with DA, meaning that individuals with higher competency

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levels tend to perform better in the given activity. Location also plays a significant positive role, indicating that people from certain areas are more likely to have higher DA scores. However, the number of children does not significantly affect DA, as its impact is statistically insignificant. The constant value represents the baseline level of DA when all other factors are set to zero. With an R-squared value of 0.423, the model explains approximately 42.3% of the variation in DA, reflecting a moderately strong relationship between the selected variables and the dependent activity.

The findings of this study offer important insights into the socio-economic challenges faced by Thari women artisans, particularly in terms of financial inclusion and digital awareness. The regression results clearly indicate that **education** plays a vital role in both areas. Women with higher educational attainment showed significantly greater digital awareness and were more likely to have access to formal financial services. This supports earlier research that links literacy with financial and digital inclusion (Demirgüç-Kunt, Klapper, & Singer, 2013). Education improves not only awareness but also the confidence required to engage with financial institutions and digital tools.

Discussion

Another notable variable that was shown to have a negative relationship with financial inclusion, as well as digital awareness, is marital status. Less engagement was reported among married women, which can be attributed to traditional gender roles, low mobility, and the deeply ingrained familial chores prevalent in rural culture in Pakistan (Funga Bcova & Weill, 2014). This raises concerns about specific interventions that take into account household dynamics and the socio-cultural limitations faced by women.

Age was a negative determinant of financial and digital inclusion, but its effect on financial access was curvilinear. The probability of younger women adopting digital tools was higher, which aligns with the global trend that indicates younger generations feel more comfortable with technology usage (Chabossou, Stork, Stork, & Zahonogo, 2008). The age 2 variable, however, showed that at some point, the likelihood of financial inclusion started to increase, likely as a result of older women gaining more decision-making power within their respective households.

The location variable was not significant in the regression model, though it had a positive correlation with the digital awareness of the subjects. This contradicts the general results, which indicate that areas with greater access to banking facilities are typically located in urban areas (Zins & Weill, 2016). Another reason could be that, despite living in a semi-urban area, structural limitations such as low documentation, low levels of institutional trust, and under-provision of services that are gender-friendly exist.

Interestingly, general competency displayed a certain, yet insignificant, positive correlation with digital awareness, proving the conclusion that basic cognitive and pragmatic skills contribute to the interaction capability of mobile and internet technologies. This supports the applicability of the UTAUT2 model

(Venkatesh et al., 2012), which identifies performance expectancy and effort expectancy as the most significant factors in facilitating the use of technology.

The results highlight a multifaceted obstacle to inclusion: Thari women artisans' access to formal financial and digital systems is hindered by a combination of factors, including limited mobility, gender norms, inadequate education, and insufficient infrastructure. Addressing just one of these elements is unlikely to result in significant change. To empower these women and improve their socioeconomic results, comprehensive, context-sensitive programs involving infrastructural investment, cultural awareness, skill development, and educational support are required.

Conclusion

This research is exploratory in that it is the first study to capture and analyze data on women artisans in Pakistan. The study highlighted the socio-economic profile of Thari women artisans and the challenges they face in their work. According to the survey results, the biggest challenge is their limited access to markets. They are highly skilled in their work, but a lack of exposure to local and international markets not only hinders the country's cultural heritage but also misses an opportunity for growth. The second biggest challenge is access to financial resources. The skilled women artisans are unable to reach markets and secure frequent orders due to a lack of financial resources. Other challenges faced by these women include a low per-piece rate, the unavailability of raw materials in their area, and infrequent orders.

Furthermore, the determinants of financial inclusion were explored in detail for Thari women artisans, revealing that being educated, unmarried, and younger increases the probability of financial inclusion. Similarly, the analysis of determinants of digital awareness showed that being more educated, younger, unmarried, and living in an urban area are significant factors influencing the level of digital awareness amongst Thari women artisans.

The identification of the challenges they face and their major determinants clearly indicates the need for training to create awareness amongst these artisans. Additionally, there is a pressing need to connect them to the world outside their district, which can be achieved in several ways. First, their geographical disconnect can be addressed by organizing networking events in Tharparkar and other regions, as well as setting up associations and chambers in the district. Secondly, their virtual disconnect can be reduced by increasing digital awareness and connecting them through technology. Third, their financial disconnect can be reduced by aggressive financial inclusion campaigns by financial institutions, NGOs, and the government. Moreover, the determinants of financial inclusion and digital awareness clearly indicate that low education is one of the root causes; thus, increasing the literacy rate will automatically alleviate the situation of women artisans.

The study, although exploratory, has laid out a roadmap for future researchers to further elaborate on the subject area. This study is based solely on data from the Tharparkar district. Future studies can focus on artisans from other areas of Pakistan, such as southern Punjab, Kashmir, Gilgit-Baltistan, and other regions of Sindh and Balochistan.

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The study will contribute to assisting the government, NGOs, and other stakeholders interested in developing underdeveloped areas of the country by providing a profile of artisans and their challenges. The determinants of the most significant challenges to financial inclusion and digital awareness will serve as a guide to identify the factors to work on for improving the socio-economic condition of Tharparkar district, specifically, and other rural areas of Pakistan in general.

Recommendations

Several suggestions to enhance DA results can be provided in light of the regression analysis. First, as greater education levels are closely associated with improved DA performance, efforts should be undertaken to improve access to education, especially for women and underprivileged groups. Second, married people, particularly women, who may have additional domestic duties that restrict their involvement or performance, should receive specialized help. Given that DA is severely impacted by age, skill development programs designed specifically for older people may be able to sustain or improve their participation.. Opportunities for continuous learning should be encouraged, as training and workshops can also enhance general competencies. Furthermore, to address regional inequities, location-specific interventions should be developed to ensure that resources and assistance reach isolated or disadvantaged communities. People juggling family obligations may still benefit from childcare assistance, even if the number of children is not a key factor. Improving DA outcomes for various population groups requires a multifaceted approach that incorporates education, skill development, and regional growth.

Significance of the Study

The research is of high importance because it identifies key socio-demographic drivers of financial inclusion, including education, marital status, and age. The findings that demonstrate the positive impact of education justify the need to enhance educational development as one means of creating access to formal financial services. The investigation also helps reveal how financial access and behavior may depend on life circumstances, such as marital status and age, providing a better understanding of the obstacles some groups may face. Such information is especially useful to policymakers, the financial sector, and development agencies, enabling them to shape the development of inclusive financial products that meet the needs of various population groups.

Limitations of the Study

Though the study had helpful findings, it has some limitations. First, it utilizes cross-sectional data that measures information at a specific point in time. None of the information collected could be used to monitor the changes over time or determine the causality. Second, certain variables, other than financial inclusion, could still affect it (e.g., income level, employment status, or cultural factors), but these were not accounted for in the model. Additionally, a study may have the issue of low generalizability due to its small sample size or limited geographic focus. These are some of the factors that should be examined further to provide a clearer picture of how financial inclusion works.

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