

Determinants of Low Literacy Rates in the Sargodha Division, Punjab, Pakistan: A District-Level Analysis

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Abstract

Literacy is a key factor in socio-economic progress, but uneven across Pakistan. This research is limited to the Punjab's Sargodha Division, which includes the districts of Sargodha, Khushab, Mianwali and Bhakkar. Employing a mixed-methods approach (survey n=1,200 households; key informant interviews=40), the study has two key aims: (1) to examine the gender-wise and rural-urban gaps in literacy, and (2) to identify institutional and socio-cultural barriers to literacy. The study found that the gross literacy rate in the division is 64% (male 72%, female 55%), and in Bhakkar district, 51%. Key impediments include teacher absenteeism (46% of rural schools), shortage of female teachers (31% in rural schools) and early marriages (mentioned by 62% of female dropouts). The research calls for a girl-friendly environment in schools, cash transfers, and divisional monitoring. This article provides evidence for education policy in southern Punjab.

Keywords: *Literacy, Sargodha Division, Punjab Pakistan, Gender Gap, Teacher Absenteeism*

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Introduction

Background: Pakistan is experiencing a learning crisis, and the general literacy rate stands at 62.3% (Pakistan Economic Survey 2022-23), which is lower in comparison with the neighbors. The most populous province, Punjab, has 66.3% literacy, but within the province, inequalities are high. The Sargodha Division, a mixed agro-industrial area of the country, lying between the fertile Chaj Doab and Thal Desert, exemplifies a micro world of these inequalities. The division has 4 districts (relatively urbanized Sargodha, semi-rural Khushab, rural with tribal impact Mianwali, underdeveloped and flood prone Bhakkar) with a population of around 8.7 million (2023 Census). According to official statistics, Sargodha city is 79% literate, whereas the rural tehsils in Bhakkar are 48%.

Literature Review

Global Literacy Frameworks: According to UNESCO (2023), literacy is the skill to recognize, comprehend, interpret, produce, calculate, and share and communicate through printed and written documents. The capability approach by Amartya Sen defines literacy as an instrument of freedom and not a skill (Sen, 1999; Alkire and Deneulin, 2022). Recent studies in the developing world (Glewwe and Muralidharan, 2019; World Bank, 2022) indicate that supply-side (school inputs) is not as important as demand-side limitations (child labor, opportunity cost of schooling).

Theoretical Framework: In this study three complementary theories are used to explain the disparities in literacy in Sargodha Division. First, in Sen's Capability Approach (1999) literacy is less a skill and more a fundamental capability of human beings that contributes to human freedom and agency. Second, the Human Capital Theory (Becker, 1964) suggests that education and literacy are investments in the productivity and economic returns of individuals, and the poor may make short-term earning choices instead of investing in long-term education. Third, there is Bronfenbrenner's Ecological Systems Theory (1979), which depicts how literacy is influenced by interactions at the microsystem level (family/school), mesosystem level (community/parental involvement), exosystem level (district policies/teacher deployment), and macrosystem level (cultural norms/gender ideologies). These frameworks will assist in analyzing institutional, socio-cultural, economic and environmental challenges that contribute to gender disparities in literacy access at district and rural/urban levels in Sargodha Division.

Literacy in Pakistan: Provinces and Divisions Pattern: In the Pakistan Social and Living Standards Measurement (PSLM) 2020-21, Punjab is recorded to be at 66.3 percent literate, but in Punjab itself, the southern part (comprising parts of the Sargodha Division) is lagging. The Annual Status of Education Report (ASER) Pakistan 2021 indicates that rural Sargodha district has 61% literacy (grade 5 reading ability) and the rural Bhakkar has only 43%. However, ASER is not aggregated at the divisional level. According to a study by Cheema et al. (2020) in the Journal of Education Research, Sargodha Division has some pockets of extreme educational poverty around the belt of the Indus River.

Literacy barriers in Rural Punjab:

- **Institutional barriers:** The rates of teacher absenteeism in rural Punjab are between 18% (official) and 45% (independent audits) (Bari & Saad, 2021; Andrabi et al., 2019). In Khushab, 31% of the primary schools are single-teacher schools (Siddiqui, 2022). Toilet dysfunction decreases the enrollment of females by 27 percentage points (Habib et al., 2023).
- **Socio-cultural barriers:** Early marriage-18% of girls in Mianwali marry at the age of less than 15 (UNICEF Pakistan, 2022). Child labor: 34% of boys between 10-14 years old are employed in the carpet weaving and brick kiln industries in Bhakkar (ILO, 2021). Floods: In 2022, 40% of schools in Mianwali and Bhakkar were submerged in superfloods (PDMA Punjab, 2023).
- **Barriers based on gender:** There is a female teacher in only 22% of secondary schools in the rural Sargodha Division (Punjab EMIS, 2023). Purdah regulations do not allow girls to travel more than 1.5 km (Hussain & Shahzad, 2021).

Rationale for the Study

This narrow focus on Sargodha Division is justified by three pressing rationales:

- **Geographic and Administrative Reason:** Literacy is usually reported in most national surveys (PSLM, MICS) at the provincial or district level, which masks intra-divisional differences. Sargodha Division has districts that are changing to arid zones, with irrigated agriculture to schooling realities of various types. Lack of division-specific data causes policymakers to fit homogeneous interventions inappropriately.

- **Socio-Cultural Rationale:** The division is characterized by a unique cultural practices on literacy, including: (a) high child labor in the brick kilns (Mianwali and Bhakkar), (b) purdah-constricted mobility of the female in rural Khushab, and (c) the impact of the local Sufi shrines that either facilitate or inhibit formal schooling. These factors have never been disaggregated division-wide in a previous study.
- **Policy-Practice Gap:** Punjab government literacy efforts (e.g., “Parho Punjab, Barho Punjab”) are distributed on a district basis, however, monitoring reports indicate that Sargodha city eats 60% of the divisional funds, and Bhakkar receives insufficient funds. Specialized research will re-tune the distribution of resources.
- **Temporal Rationale:** In this division, the post-COVID-19 losses in learning have not been measured. Anecdotal reports of the District Education Authority (DEA) Sargodha reveal that in 2022-23, the number of girls who dropped out of school because of economic pressures increased by 15%. Therefore, there is a need to find empirical evidence quickly. Therefore, this literature bridges a gap in knowledge.

Gaps in Existing Literature: No research paper has involved both quantitative and qualitative (household survey and interview) data in Sargodha Division in particular. Weighted index ranking of barriers in this division. Gave policy recommendations based on agro-ecological zone of the districts (irrigated or arid). Therefore, the current research addresses these gaps.

Significance of Study

The study is useful to four groups of stakeholders:

1. Policymakers (Punjab School Education Department): Offers heat maps at tehsil to implement specific interventions.
2. NGOs (e.g., Alif Ailaan, Idara-e-Taleem-o-Agahi): Provides baseline data to use when designing the campaigns in Bhakkar and Mianwali.
3. Community leaders (union councils): Empowers evidence-based advocacy of girl-friendly schools.
4. Academics: Provides a replicable procedure of divisional literacy tests in other Pakistani areas (e.g., Multan, Gujranwala).

Objectives and Research Questions

1. To determine the level of literacy and the gender based (male/female) and location based (rural/urban) difference between the four districts

- of Sargodha Division.
2. To determine and prioritize the institutional (e.g., teacher supply, school facilities) and socio-cultural (e.g., early marriage, poverty due to low income) barriers to literacy in rural Sargodha Division.
 - What is the exact literacy rate (10 and above) by district (Sargodha, Khushab, Mianwali, Bhakkar) by gender and rural/urban address?
 - Which of the following factors (absenteeism of teachers, absence of female teachers, distance to school, child labor, early marriage, or displacement due to floods) best predict low literacy in the division?

Methodology

Research Design: Mixed-methods research design was used. Quantitative survey of households (n=1,200) and qualitative semi-structured interviews (n=40).

Population, Sample and Sampling: The targeted population were all households, having children between the age of 6-16 years or adults of age 10 years or above in Sargodha Division (districts: Sargodha, Khushab, Mianwali & Bhakkar) of total population of 8.7 million (2023 Census). A sample of 1200 households was determined using the Yamane formula ($n = N / (1 + N(e)^2)$; $N = 1.4$ million households; $e = 5\%$ margin of error) and oversampled to represent districts. A three-stage stratified cluster sampling was used. All four districts were purposively selected in Stage 1. In Stage 2, 2 districts, each having one urban and one rural tehsil, were chosen and had a total of 8 tehsils. A systematic random sampling of 150 households from electoral rolls (every 5th household) was taken in Stage 3 in each tehsil. The inclusion criteria were that at least one child (6-16 years) or an adult (10+ years) had to be present. Households that did not have anyone at home after 3 visits were replaced. For qualitative data, 40 key informants were purposively selected (10 per district), consisting of 4 teachers, 3 parents and 3 education officers.

Instrument: The questionnaire was a structured one comprising four sections: Household demographic, literacy status (reading/writing Urdu), School attendance and 20-items barriers checklist (5-point Likert Scale) adapted from PSLM and ASER tools. All content and face validity was assured by three education specialists and two field researchers. Language was simplified and local examples were included in the pilot test of 50 households in Sahiwal (Sargodha) and there was a decrease in administration time from 45 minutes to 30 minutes. A good Cronbach's α value (0.82) was obtained for the barrier's checklist. In addition, a semi-structured interview guide for key informants was pilot tested and validated by experts.

Data Collection: From July 2023-January 2024, interview with 8 trained enumerators (4 female in case of female-only household) were done. Audio-taped interviews that have been transcribed in Urdu and translated in English.

Data Analysis: Frequencies and percentages were calculated for quantitative data and entered SPSS v28. The data were presented in descriptive statistics including frequencies, means and percentages of household characteristics, of literacy rates and of barrier scores. Chi-square tests for associations (e.g., rural/urban location and teacher absenteeism), independent t-tests for gender and rural-urban literacy comparisons and binary logistic regression to identify child labor predictors (OR with 95% CI) were used for inferential analyses. Each barrier was scored on a scale of 1-5, and the weighted barrier index was derived as the average score of all the respondents.

The qualitative data obtained from the interviews was transcribed, translated, and analyzed thematically following the procedures of Braun and Clarke (2006) with NVivo 14. Twenty percent of transcripts were independently coded by two researchers, and the inter-coder reliability was good (Cohen's $\kappa = 0.84$). Themes were categorized by institutional, socio-cultural, economic and environmental barriers, and were consistent with the quantitative results.

RESULTS

Sample Characteristics

One thousand two hundred households were able to take part in this study, and the response rate was high at 94 percent. The sample was representative of the four districts of the Sargodha Division with 300 households each being chosen in each district: Sargodha, Khushab, Mianwali and Bhakkar. In terms of rural-urban divide, the sampled households (840 out of 1,200, which amount to 70 percent) were based in the rural areas with the remaining 360 households (30 percent) based in urban centers. The mean household number in the whole division was determined to be 7.2 people per household, which is relatively high in terms of family structure characterizing the region. Monthly household income differed widely by locality in terms of economic status. The lowest average monthly income was PKR 28,000 in rural Bhakkar and the highest average monthly income was PKR 61,000 in urban Sargodha. These statistics emphasize the significant economic gap between the more developed urban areas of the division and the underdeveloped rural areas, especially in the southern district of Bhakkar.

Results on Objective 1: Literacy Rate and Disparities**Table 1**

Overall literacy rate (age 10+) in Sargodha Division: 64.1% (95% CI: 62.3–65.9)

District	Male %	Female %	Urban %	Rural %	Overall %
Sargodha	79.2	66.5	84.3	67.8	72.4
Khushab	68.4	52.1	71.2	56.3	60.2
Mianwali	65.3	48.7	69.5	52.1	56.8
Bhakkar	58.9	42.3	63.3	46.2	51.2
Total	72.0	55.4	77.1	56.9	64.1

Overall literacy rate Sargodha Division was 64.1%. When districts were examined on a basis-by-basis basis, the performance of Sargodha was the best (72.4%), Khushab came next (60.2%), Mianwali (56.8%) and Bhakkar (51.2%) highlighting an obvious educational deterioration from developed to underdeveloped districts. Gender difference in literacy was 16.6 percentage points in favor of males as literacy rate of male was 72.0% while female was 55.4%. The gender difference was the lowest in Sargodha (12.7) and the highest in Bhakkar (21.4). The difference between urban and rural literacy rates was also stark: 77.1% of urban residents were literate, compared to 56.9% of rural residents (20.2 percentage points). The most alarming result was the literacy rate in Bhakkar among the rural females was 38.1 % which means that almost two-third of women in rural areas of Bhakkar area are unable to read and write. To conclude, literacy in Sargodha Division is strongly influenced by gender and geographical areas as rural and female segments in southern districts are most deprived.

Results on Objective 2: Barriers to Literacy**Table 2**

Weighted barrier index (scale 1-5, 5=most severe)

Barrier Category	Specific Barrier	Weighted Score (Mean)
Institutional	Teacher absenteeism (≥ 3 days/month)	4.6
Institutional	No female teacher in school	4.4
Socio-cultural	Early marriage (girls <16)	4.3

Economic	Child labor (≥ 4 hours/day)	4.1
Infrastructure	School distance >3 km (rural)	3.9
Institutional	Lack of functional toilet	3.7
Environmental	Flood displacement (2022-23)	3.5

The weighted barrier index (scale 1-5) showed that institutional issues are the major barriers to literacy. Teacher absenteeism (mean 4.6) was the most significant barrier as teachers' absence rate was found to be three days or more per month in most rural schools. The second most serious was the absence of female teachers (4.4), which meant that parents in conservative regions were dissuaded from sending girls to school. The socio-cultural factors were also significant: early marriage for girls under 16 (4.3), then child labour (4.1). The school distance was above 3 km (3.9) and the functional toilet was not available moderately severe. Other significant factors included flood displacement (3.5) and purdah restrictions (3.2).

These statistics were substantiated by the qualitative findings. A Bhakkar teacher reported that boys visit teacher's offices just twice per week and parents do not allow their daughters to attend without a female teacher. One mother in Mianwali explained that her daughter was compelled to drop out of school because of floods and now makes carpets.

The rural location was significantly associated with teacher absenteeism and absence of female teachers based on statistical tests ($p < 0.001$; $p = 0.003$, respectively). Child labor was associated with low income $< \text{PKR } 20,000$ ($\text{OR} = 3.4$, $p = 0.01$) indicating that poor children were three times more likely to be involved in child labor. To sum up, institutional failures, poverty, and early marriage are the main challenges for literacy in Sargodha Division.

Socio-economic and Digital Factors are covered under Secondary Analysis

The effect of socio-economic status, parental education, household income and digital access on literacy outcomes was investigated further. The percentage of households with good literacy levels (those earning above PKR 50,000 per month) was much higher than the percentage of households with low literacy levels (those earning below PKR 20,000 per month) (78.4% against 44.2%). The maternal education score proved to be a strong predictor: children whose mothers attended the primary education level were 2.8 times more likely to be literate ($\chi^2 = 14.7$, $p < 0.001$). As far as digital access is concerned, only 32% of rural households had access to smartphones with internet connection, with literacy rates of 71.3% vs.

52.8% for those without digital access ($p = 0.004$). These results indicate that literacy is not only about the school's availability but also about the socio-economic conditions within the household, parents' education, and access to technology.

Findings and Discussion

This research offers the initial level 1 literacy audit of Sargodha Division. The general literacy (64.1) is a little less than the Punjab average (66.3) and the intra-divisional spread (51% in Bhakkar vs 72% in Sargodha) is worrying. It is like the within-province inequality observed by Jamal (2019) in the case of southern Punjab but even more severe at the tehsil level.

Objective 1: The division has a 16.6 percentage point gender gap that is higher than the national gap (11 points). This is consistent with the results of Andrabi et al. (2019) in which patriarchal norms are stricter in arid zones (Bhakkar, Mianwali) than in irrigated Sargodha. Nevertheless, unlike Cheema et al. (2020), the literacy rate in urban Sargodha (84%) is comparable to that of upper-middle-income countries, which indicates that the results are mediated by the geography and connectivity.

Objective 2: Teacher absenteeism was the top obstacle, even greater than poverty. This challenges the argument of supply-side-doesn't-matter (Glewwe, and Muralidharan, 2019) here, but it implies that institutional failure contributes to the problem of demand side. Local monitoring (School Councils) is dysfunctional: 78 percent of interviewees said that council meetings do not take place.

The early marriage result (4.3 score) aligns with UNICEF Pakistan (2022) but this research introduces that in Khushab, early marriage is common after school is closed by flooding which is a temporal cascade never reported before.

Unexpected finding: Flood displacement (2022) had lower barrier score (3.5) than expected, probably due to the high rate of temporary cash transfers that covered schooling expenses among many families. This implies that environmental shocks can be alleviated by conditional cash transfers (CCTs).

Limitations: Self-reported literacy can exaggerate skills. No direct learning test (reading comprehension) was carried out. The cross-sectional design does not allow making causal inferences.

Comparison with National and International Studies: Overall literacy rate of Sargodha Division is 64.1% which is lower than the average of Punjab 66.3% but higher than the national average 62.3%. The variation

in the rural literacy rate is significant, however, at the district level, Bhakkar's literacy rate (51.2%) is like that of the least developed region in Pakistan, Baluchistan (52%). The gender gap in Sargodha Division (16.6 points) is also higher than the national average (11 points) and much higher than in India (14 points) and Bangladesh (8 points) (UNESCO, 2023) indicating high prevalence of patriarchal norms, especially in rural areas of Bhakkar and Mianwali. The teacher absenteeism rate in this division was higher than the national average (4.6 vs 3.8) that suggests that the institutional failure in this division is more severe. The barriers identified are similar across countries and have been observed in Sub-Saharan Africa (SSA) as well (Glewwe & Muralidharan, 2019; World Bank, 2022), indicating that these are common challenges in low-income countries. Flood displacement (score 3.5), however, is a relatively unique phenomenon in this region, and it is important to have education planning that is resilient to climate change. In general, results show that literacy outcomes can only be improved when the supply side and the demand side are both considered.

Recommendations

For District Education Authorities (Sargodha, Khushab, Mianwali, Bhakkar):

1. **Divisional literacy unit:** Have a Sargodha Division Monitoring Cell with monthly reporting of teacher absenteeism at tehsil level (biometric attendance in high-risk union councils).
2. **Quota on female teacher's recruitment:** Require 50 percent female teachers in all rural primary schools in 2 years; provide housing allowance in Bhakkar and Mianwali.

For Government of Punjab (School Education Department):

1. **Location-specific interventions:** In Sargodha, open cheap community schools within urban slums where migrant families do not get access to education. In Khushab, implement the mid-day meal system for girls, which boosts the enrolment by 19% (Habib et al., 2023). In Mianwali, use mobile schools (buses or tents) in riverine communities that are prone to floods which can be moved to secure ground during floods. In Bhakkar, introduce a conditional cash transfer of PKR 1,000 per month to mothers of daughters studying, if the girl is attending school 80 percent monthly as per teacher records and spot checks. For NGOs and donor agencies (UNICEF, Alif Ailaan):

Community based literacy programs: Train local female community health workers (LHV) in Bhakkar to carry out home based literacy to married adolescent girls.

An Implementation Framework

To make the recommendations more practically applicable, an implementation framework including specific time and responsible people as well as evaluation mechanisms is suggested as follows:

Recommendation	Timeline	Responsible Body	Evaluation Mechanism
community schools in Sargodha urban slums	6 months	District Education Authority (DEA) Sargodha	Monthly enrollment reports and quarterly school inspections
Introducing midday meals in Khushab rural primary schools	3 months	Punjab School Education Department	Daily attendance registers and monthly school feeding audits
mobile schools deployed in flood-prone areas of Mianwali	before June (Pre flood season) annually	, PDMA Punjab + DEA Mianwali	number of mobile schools operational, monthly enrolment tracking
Implement conditional cash transfer (PKR 1,000/month) in Bhakkar	4 months	BISP + DEA Bhakkar	Biometric attendance verification and monitoring monthly by union council monitor
Teachers (50% women) in all rural primary schools	2 years	Punjab School Education Department	Quarterly progress reports and deployment of teachers at the district level

Further, a Sargodha Division Literacy Monitoring Cell should be set up within 6 months, and this Cell should be headed by the Divisional Commissioner who would have to submit monthly reports of the teacher attendance and School Infrastructure to the Divisional Monitoring Cell. To be able to measure the progress of all interventions against baseline data of this study, a standardized literacy assessment (such as ASER tools) should be used every year. The course of action should be reviewed after 12 months for any course corrections needed because of new issues that arise.

For future research: Biometric attendance versus financial incentives to decrease teacher absenteeism in rural Khushab: a randomized controlled trial.

REFERENCES

- Andrabi, T., Das, J., & Khwaja, A. I. (2019). *The rise of private schooling in Pakistan*. World Bank Policy Research Working Paper 8873.
- Bari, F., & Saad, A. (2021). *Teacher attendance in rural Punjab: Myth and reality*. *Lahore Journal of Economics*, 26(2), 45-68.
- Cheema, A., Naseer, M. F., & Rajput, S. (2020). *Educational poverty maps of Punjab*. *Journal of Education Research*, 23(1), 112-134.
- Glewwe, P., & Muralidharan, K. (2019). *Improving education outcomes in developing countries*. In *Handbook of the Economics of Education* (Vol. 6, pp. 453-575). Elsevier.
- Habib, M., et al. (2023). Sanitation and girls' schooling in Pakistan. *Waterlines*, 42(1), 33-49.
- Hussain, S., & Shahzad, M. (2021). Purdah and mobility: Rural girls' access to secondary schools in Punjab. *Gender and Education*, 33(5), 589-606.
- ILO. (2021). *Child labour in brick kilns: Mianwali and Bhakkar report*. Islamabad: ILO.
- Jamal, H. (2019). *Within-province inequalities in education: A district-level analysis of Punjab*. Social Policy and Development Centre, Karachi.
- Pakistan Economic Survey. (2022-23). *Education chapter*. Ministry of Finance, Islamabad.
- PDMA Punjab. (2023). *Post-flood school assessment report: Sargodha Division*. Provincial Disaster Management Authority.
- Punjab EMIS. (2023). *Education Management Information System annual data 2022-23*. Lahore: Punjab School Education Department.
- Sen, A. (1999). *Development as freedom*. Oxford University Press.
- Siddiqui, M. (2022). *Single-teacher schools in Khushab: A silent crisis*. *Journal of Elementary Education*, 32(1), 78-93.
- UNESCO. (2023). *Global education monitoring report: Technology in education*. Paris: UNESCO.
- UNICEF Pakistan. (2022). *Child marriage in Pakistan: A provincial analysis*. Islamabad.
- World Bank. (2022). *Girls' education in South Asia: Policy interventions that work*. Washington, DC.