

THE SOCIAL IMPACT OF THE CHINA-PAKISTAN ECONOMIC CORRIDOR (CPEC) ON LOCAL COMMUNITIES IN SOUTH PUNJAB, PAKISTAN

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ABSTRACT

One of the key components of the Belt and Road Initiative (BRI) is the China Pakistan Economic Corridor (CPEC) that has become a model of developmental with numerous socio-economic implications. This study endeavored to examine the social implications of CPEC on the local communities in South Punjab, including the impacts on livelihoods and indigenous culture. The data were collected through a quantitative questionnaire from 400 respondents in four strategically selected districts (Multan, Bahawalpur, Rahim Yar Khan and Dera Ghazi Khan). The results revealed that CPEC has done much in enhancing employment opportunities (M = 4.36, SD = 0.72), household income (M = 4.20, SD = 0.79) and accessibility to education and healthcare (M = 4.25, SD = 0.78). However, there are significant concerns regarding mass displacements through land acquisition (M = 4.28, SD = 0.74), imbalance in the distribution of benefits (M = 4.20, SD = 0.77), and the loss of traditional livelihoods (M = 4.15, SD = 0.79). Multiple regression analysis showed significant association between various CPEC programs dimensions and perceived social impacts. Infrastructural development was identified to be the strongest predictor of perceived social impacts ($\beta = 0.348$, $p < 0.01$). Findings recommend a few interventions to foster fairness, skill development, and community inclusion in decision-making to achieve equitable and sustainable development.

Keywords: CPEC, Social impact, Livelihoods, Displacement, Inequality, Infrastructure development, Cultural transformation, Belt and Road Initiative

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1. INTRODUCTION

China-Pakistan Economic Corridor (CPEC), a groundbreaking project offered by China as one of the key elements of Belt and Road initiative (BRI). CPEC is a multi-billion-dollar project for building infrastructural network of roads to improve connectivity in the region as well as has programs of social and economic development in Pakistan. CPEC covers all provinces of Pakistan with aim of transforming the socio-economic situation through improved transport infrastructure, creation of new employment opportunities, and inflow of foreign investments (Khan et al., 2023; Muhammad et al., 2024). Moreover, it also includes the programs of agricultural modernization and development of local industries (Ma, 2024).

Although, CPEC program seems promising in bringing development and adding value to Pakistan's economy, yet it has socio-economic repercussions for local community, either positive or negative. Development projects always have their own positive and negative sides. On one hand, CPEC associated infrastructures may create jobs and improve market access, medical and education centers, and empower the poor populations. Conversely, there is also a possibility of social displacement, income inequality, loss of environment, and disturbance of culture under reckless industrialization and urbanization (Saqib et al., 2023).

Current study is aimed at studying the social aspects of CPEC projects implemented in South Punjab. The impact of development programs may spill over to social integration, resource distribution, and livelihood of the rural populace of South Punjab that is highly dependent on agriculture and labour work (Muhammad et al., 2023).

It is vital to critically examine the socio-economic impacts that CPEC-based development projects on the local people in terms of change in livelihoods, migration and communal relationships as well as access to social services. The findings are crucial for guiding policymakers and other stakeholders to consider interventions in the program and ensure inclusivity and sustainable outcomes.

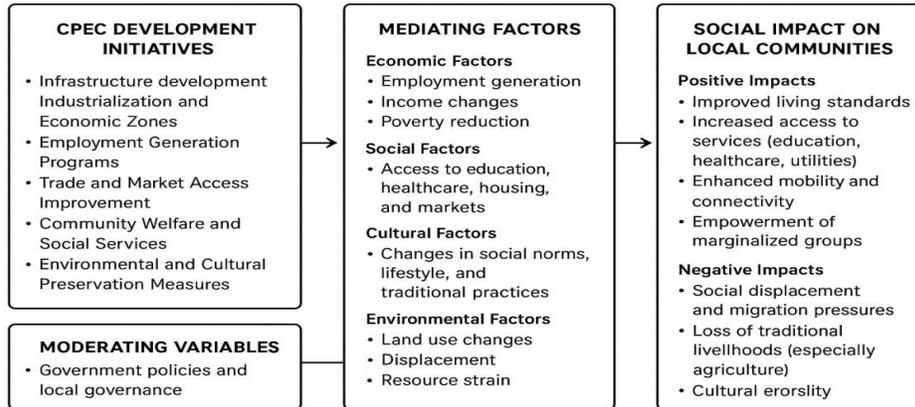
1.1. Research Objectives

The study is based upon following specific objectives: (i) to examine the CPEC effects on livelihood,

57 employment and source of income in South Punjab, (ii) to assess the social and cultural shifts taken place as a result
 58 of the infrastructural development and industrialization, and (iii) to determine the potential social problems and
 59 dangers, including displacement, inequality, and local livelihood loss. The conceptual framework regarding this
 60 research is shown in Fig 1.
 61

CONCEPTUAL FRAMEWORK

Fig 1: Conceptual Framework (Self-computing)



62
 63 **2. MATERIALS AND METHODS**

64 The study was quantitative in nature and employed cross-sectional research design to achieve study's
 65 objectives. Quantitative approach was deemed suitable to gather quantifiable data and perform statistical analysis
 66 and establish relation between variables.

67 The study was conducted in South Punjab, an underdeveloped region with dominant agricultural sector. The
 68 four districts were purposely selected due to the presence of the significant CPEC related activities: Multan,
 69 Bahawalpur, Rahim Yar Khan and Dera Ghazi Khan. These areas have gone through colossal infrastructure and
 70 industrial developments like road networks, industrial areas and electricity projects.

71 The target population was comprised of individuals directly or indirectly impacted by the development of
 72 CPEC, such as the people residing in villages/towns along new infrastructural projects, industries, trade routes, etc.
 73 This sampling was conducted through a multistage random technique. Data were collected using a structured
 74 questionnaire designed in accordance with the study objectives. The instrument consisted of close-ended questions
 75 measured on a five-point Likert scale, ranging from 1 = *Strongly Disagree* to 5 = *Strongly Agree*. The questionnaire
 76 was divided into five sections: (1) demographic information, (2) livelihood and employment changes, (3) social and
 77 cultural transformations, (4) social challenges and risks, and (5) community perceptions regarding CPEC's overall
 78 social impact. The data collection process involved face-to-face surveys conducted by trained enumerators. Local
 79 enumerators familiar with the language and culture of the study area were recruited to build trust and ensure better
 80 communication, particularly among respondents with lower literacy levels. The entire data collection process was
 81 completed within six weeks.

82 Data analysis was conducted using Statistical Package for the Social Sciences (SPSS) version 25. The analysis
 83 proceeded in three stages. First, descriptive statistics (frequencies, percentages, means, and standard deviations) were
 84 computed to summarize respondents' demographic characteristics and overall responses. Second, inferential statistical
 85 techniques were used to test multiple regression analysis to predict the relationship between independent variables
 86 (CPEC development factors) and dependent variables (social impacts). The regression model is expressed as:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \dots + \beta_n X_n + \epsilon$$

87
 88 Where:

- 89 • Y = dependent variable (social impact score)
- 90 • β_0 = constant (intercept)
- 91 • $\beta_1, \beta_2, \dots, \beta_n$ = coefficients for predictor variables
- 92 • X_1, X_2, \dots, X_n = independent variables (e.g., infrastructure development, industrialization, job creation)
- 93 • ϵ = error term

94 Ethical considerations were strictly observed throughout the research process. Informed consent was obtained
 95 from all participants prior to data collection, and they were informed about the purpose of the study, their right to
 96 withdraw, and the confidentiality of their responses.

97 **3. RESULTS**

98 **3.1. Effects of the CPEC on local livelihoods, employment opportunities, and income status**

99 Table 1 comprehensively illustrates the effects of China-Pakistan Economic Corridor (CPEC) on local
 100 livelihoods, employment opportunities, and income sources in South Punjab. The findings reveal that the CPEC has
 101 increased the employment and livelihood opportunities. The highest-rated indicator across all categories was CPEC
 102 offering new jobs to locals (M = 4.36, SD = 0.72), indicating that CPEC has made a significant contribution by
 103 providing direct and indirect jobs in the area. The is aligned with Ghanem et al. (2021) and Nazneen et al. (2022),
 104 who stated that CPEC has already created thousands of jobs in the field of construction, logistics, and industry,
 105 lowering the rates of unemployment. Likewise, the increase in the availability of skilled training (M = 4.18, SD =
 106 0.77), indicates a greater focus on training the workforce with the necessary skills to join new industries (Hassan,
 107 2024). However, low scores were reported on job opportunities for women (M = 3.39) and youth (M = 3.26),
 108 highlighting limitations in CPEC's efforts to ensure equal opportunities for all, especially for underprivileged
 109 groups. The current finding aligns with Waqar et al. (2022), who found that although the overall trend is towards
 110 more employment opportunities, structural and policy gaps persist and continue to affect youth engagement.
 111

112 **Table 1: Effects of CPEC on Local Livelihoods, Employment Opportunities, and Income Sources (n = 400)**

Category	Indicators	Mean	SD	Rank
Local Livelihoods	Agricultural profitability has increased due to CPEC	3.95	0.89	1
	Wage levels for workers have improved significantly	3.82	0.91	2
	People have lost local livelihoods/traditional small businesses after CPEC	3.54	1.01	3
Employment Opportunities	CPEC has created new job opportunities for locals	4.36	0.72	1
	Availability of skilled training opportunities has increased	4.18	0.77	2
	CPEC has reduced unemployment in the area	4.05	0.80	3
	Women's participation in the workforce has increased	3.39	0.84	4
	Opportunities for youth employment have expanded	3.26	0.90	5
Income Sources	Household income has increased due to CPEC activities	4.20	0.79	1
	Local businesses have benefited from CPEC developments	4.12	0.82	2
	Trade opportunities have improved	4.05	0.85	3
	Livelihood diversification opportunities have expanded	3.89	0.92	4

113
 114 CPEC is also reported to have positively effect income levels in the region, as respondents highly rated the
 115 statement that household income has been raised as a result of CPEC activities (M = 4.20, SD = 0.79). The local
 116 businesses have also benefited from the CPEC, as evidenced by the statement "Local businesses have benefited
 117 from the developments of CPEC" (M = 4.12, SD = 0.82). Further, respondents agreed that trade opportunities have
 118 improved, as have opportunities for livelihood diversification. These results correspond to ILO (2021) and Karim et
 119 al. (2020) who found that CPEC has positively impacted the economy of the countries because of its ability to
 120 enhance opportunities for trade and lower transport costs. Increasing livelihood diversification is a major success of
 121 any development project, as diversified income is a fundamental rule for establishing long-term financial stability,
 122 particularly in rural areas (Alam et al., 2021).
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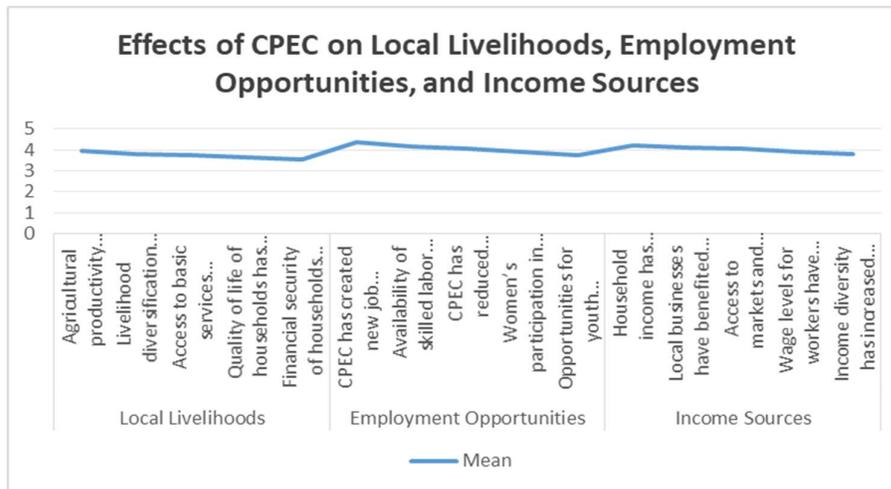


Fig 2: Effects of CPEC on local livelihoods, employment, opportunities, and income sources.

124 Regarding impact of CPEC on local livelihoods, the data indicate increase in agricultural productivity and
125 profitability ($M = 3.95$, $SD = 0.89$). Shinwari (2025) confirms this by stating that rural farmers have benefited from
126 the CPEC projects in terms of reduced transportation time and costs. Moreover, respondents were also agreed on
127 CPEC impact in increasing the wages of skilled labour ($M = 3.82$, $SD = 0.91$), which is crucial to lessen poverty
128 and agricultural growth in rural areas. Nevertheless, the statement that “People have lost local
129 livelihoods/traditional small businesses after CPEC” attained low scores ($M = 3.54$, $SD = 1.01$) as graphically
130 shown in Fig 2, which emphasized that the phenomenon does exist, but the majority of respondents were undecided
131 on it. Waheed et al. (2023) also highlighted the uneven distribution of benefits from CPEC across various social
132 groups. The table shows that CPEC has contributed a lot to the socio-economic growth of the South Punjab,
133 especially creation of jobs, increasing agricultural profitability and diversifying sources of income. The indications
134 of fewer engagements of women and youth and a moderate response to the loss of local businesses, however,
135 suggest that there is a need to reconsider policies and make interventions for equitable distribution of benefits.
136 These results are consistent with Anwar et al. (2024), who state that although mega-infrastructure projects such as
137 CPEC can trigger growth in the region, their success will be determined by the equitable benefits for all
138 stakeholders and inclusion of the local community.
139

140 3.2. Social and cultural transformations

141 Table 2 presents the results of social and cultural changes in South Punjab due to CPEC-based infrastructure
142 and industrialization. The highest rated social benefits include better health and education facilities and improved
143 connectivity due to better transportation system, ($M = 4.25$, $SD = 0.78$) and ($M = 4.10$, $SD = 0.82$), respectively.
144 These findings are similar to Ibrar et al. (2022), who highlighted social benefits of CPEC. Alam et al. (2023b) found
145 that CPEC has contributed to enhancing social cohesion by linking marginalized regions to the regional markets and
146 urban centers. On the same note, the fact that, better transportation facilities have minimized social isolation ($M =$
147 3.96 , $SD = 0.86$) shows that the area has enhanced infrastructure, which has reduced the degree of remoteness
148 experienced by the rural dwellers. However, the respondents are neutral about the benefits of CPEC for improved
149 participation and mobility of women ($M=3.51$, $SD=0.88$).
150

151 **Table 2:** Social and Cultural Transformations Resulting from CPEC Development (n = 400)

Category	Indicators	Mean	SD	Rank
Social Transformations	Enhanced access to education and healthcare	4.25	0.78	1
	Improved connectivity due to better transportation facilities	4.10	0.82	2
	Strengthened social networks through better communication	3.96	0.86	3
	Improved women's participation and mobility	3.51	0.88	4
	Increase in community involvement in collective decision-making	3.38	0.93	6
Cultural Transformations	Increased interaction among diverse communities and cultures	4.18	0.81	1
	Growth of urbanization due to industrial development in cities and migration	3.97	0.85	2
	Preservation of traditional customs and values has been maintained	3.62	0.91	3

152 Among cultural transformation under CPEC, the most rated cultural change was increased interaction between
153 various communities and cultures ($M = 4.18$, $SD = 0.81$). According to Alam et al. (2023a), such interactions can
154 contribute to cultural diversity, social harmony, and mutual understanding. Further, growth of urbanization due to
155 industrialization ($M = 3.97$, $SD = 0.85$) means that individuals are following the migration, and the rural population
156 is moving into urban centers around industrial centers in search of employment. Bhat et al. (2023) also highlighted
157 an increase in urbanization in areas where CPEC projects are active. The lowest-rated cultural indicator was the
158 statement “traditional customs and values has been maintained” ($M = 3.602$, $SD = 0.91$), indicating that
159 communities were fearful of the possibility of losing traditional customs and values. As Ali et al. (2023) indicated,
160 with modernisation, there is a risk of eroding indigenous cultures and creating conflict in societies. These findings
161 are consistent with the broader literature that emphasizes the dual nature of mega-projects, including CPEC, in
162 which economic and social development are balanced to avoid the emergence of additional inequalities and cultural
163 divisions (Hassan, 2024).
164

166 3.3. Key social challenges and risks

167 Table 3 highlights the key social challenges and risks perceived by communities in South Punjab in relation to
168 the ongoing CPEC (China-Pakistan Economic Corridor) projects. The highest ranked indicator under this category
169 was “In increased risk of displacement due to land purchase in CPEC projects” ($M = 4.28$, $SD = 0.74$). This means
170 that residential and agricultural areas are under threat of infrastructure and industrial development such as road
171 networks, economic zones, and energy development. Such a displacement not only disrupts the physical lives of the

172 targeted communities, but it also threatens their socio-cultural lives. In addition, another urgent problem was the
 173 insufficient compensation and resettlement plans (M = 4.11, SD = 0.80): participants were dissatisfied with
 174 government and project authorities regarding compensation policies and rehabilitation after displacement. The
 175 psychological consequences of forced migration, such as social disintegration and social disruption were also rated
 176 high by respondents (M = 3.95, SD = 0.84). Asghar et al. (2024) also stated the same findings. Unequal distribution
 177 of benefits among local communities (M = 4.20, SD = 0.77) was the highest-rated statement in the category
 178 concerning inequality. Further, high scores for marginalisation of vulnerable groups and unequal access to
 179 employment also indicate that respondents agreed with these. Iram et al. (2024) and Rana (2022) also reported the
 180 similar findings and highlighted that CPEC may increase the socio-economic inequality. The third major category
 181 of problems is linked to the loss of livelihoods. The highest-rated issue in this category was disruption of traditional
 182 small businesses (M = 4.00, SD = 0.85), which illustrates that modern industrial systems and foreign enterprises
 183 may negatively affect existing local businesses. The second indicator (reduction in reliance on local craft and
 184 heritage-based livelihoods) (M=3.81, SD=0.87) is a slow erosion of the traditional knowledge and cultural activities
 185 as graphically shown in Fig 3. Ishfaq et al. (2024) stated that modernisation can open new opportunities; however,
 186 in the long term, it can undermine local industries, heritage, traditional knowledge, and cultural identity.
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 188

Table 3: Perceived Social Challenges and Risks Associated with CPEC Development (n = 400)

Category	Indicators	Mean	SD	Rank
Displacement Issues	Increased risk of displacement due to land acquisition for CPEC projects	4.28	0.74	1
	Lack of adequate compensation and resettlement plans for displaced families	4.11	0.80	2
	Social disruption caused by relocation of affected communities	3.95	0.84	3
Inequality Concerns	Unequal distribution of benefits among local communities	4.20	0.77	1
	Marginalization of vulnerable groups such as women and landless farmers	4.05	0.83	2
	Unequal access to employment opportunities created by CPEC	3.92	0.89	3
Loss of Traditional Livelihoods	Disruption of traditional small businesses and cottage industries	4.00	0.85	1
	Reduction in reliance on local craft and heritage-based livelihoods	3.81	0.87	2

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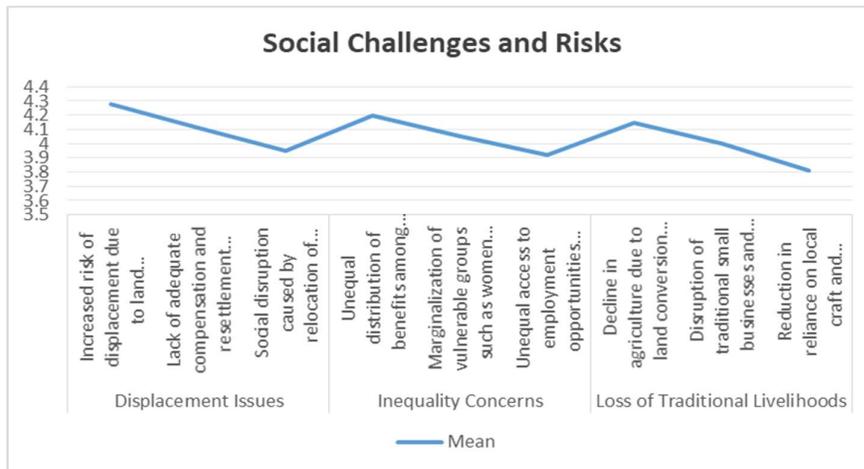


Fig 3: Social challenges and risks.

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3.4. CPEC plans in the event of social impacts

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Table 4 shows that the multiple regression analysis was very strong and significant (F-statistic = 98.42, *p> = 0.001), indicating that there was a relationship between various China-Pakistan Economic Corridor (CPEC) programs and perceived social impacts of these programs. The model elucidates the perceived social impacts, with an R² of 0.659 and a p-value of 0.000, indicating that the six CPEC initiatives, individually, explain and account for 65.9 per cent of the variation in the dependent variable. This high value in the explanatory section provides evidence that the chosen independent variables are highly important dimensions by which the local population evaluates the impact of CPEC on society.

Infrastructure development (β =.348, =.01) was the strongest predictor that suggests that investments in transportation, energy networks are the most obvious and visible effect of CPEC on local communities, which is also consistent with the research that defines infrastructure as the most visible and noticeable impact of CPEC on the local communities (Ali, 2024; Baig et al., 2021). This was closely followed by strengthening economic activities in region through industrialized zones (β =0.301, *p> =. 01) and creating employment opportunities (β =

0.276, $p = .01$) which proves the prevalence of economic aspects and the establishment of employment opportunities in the Pakistani government discourse on CPEC as the economic driving force (Ali et al., 2023). The predictive power of trade and market access improvements ($\beta = 0.209, p = 0.01$) was also strong with highly significant relationship. However, the social services and community welfare ($\beta = 0.167, p = 0.05$) and the actions by environmental and cultural preservation ($\beta = 0.104, p = 0.05$) were not so strong but still significant predictors. The results are in line with available literature (Anwar et al., 2024; Ashraf, 2023; Anwar et al., 2022).

Table 4: Multiple Regression Analysis of CPEC Initiatives Predicting Social Impacts.

Independent Variables (CPEC Initiatives)	Unstandardized Coefficients (B)	Standard Error (SE)	Standardized Coefficients (Beta)	t-value	p-value	Significance
Infrastructure Development	0.325	0.051	0.348	6.37	0.000	Highly Significant ($p < 0.01$)
Industrialization and Economic Zones	0.287	0.058	0.301	4.95	0.000	Highly Significant ($p < 0.01$)
Employment Generation Programs	0.264	0.049	0.276	5.39	0.000	Highly Significant ($p < 0.01$)
Trade and Market Access Improvement	0.198	0.046	0.209	4.30	0.000	Highly Significant ($p < 0.01$)
Community Welfare and Social Services	0.154	0.052	0.167	2.96	0.003	Significant ($p < 0.05$)
Environmental and Cultural Preservation Measures	0.098	0.045	0.104	2.18	0.030	Significant ($p < 0.05$)
Model Summary			Value			
R (Multiple Correlation)			0.812			
R ² (Coefficient of Determination)			0.659			
Adjusted R ²			0.652			
F-statistic			98.42			
Significance of F			0.000			

4. CONCLUSION

Findings revealed that CPEC has increased the infrastructure, connectivity and the availability of key social services such as education and healthcare by a very large margin. It has also generated new employment, boosted local businesses and enhanced household income. Besides, CPEC has improved social interaction, reduction of isolation and cultural diversity. However, such positive outcomes were also associated with the severe societal problems that were revealed in the study. The displacements caused by land acquisition, the unfair allocation of benefits, and the marginalization of vulnerable groups were identified as crucial problems. Among the key threats to long-term sustainable development are the loss of traditional livelihoods, increased inequalities, and environmental destruction. Multiple regression analysis showed very strong and significant (F-statistic = 98.42, $p > = 0.001$) relationship between various CPEC programs and perceived social impacts. Findings highlight the duty of policymakers to address disparities and facilitate fair compensation, skill development, and community inclusion in decision-making to achieve equitable and sustainable development.

Declarations

Acknowledgements: Not applicable.

Conflict of Interest: The author declares no conflict of interest.

Data Availability: All data supporting the findings of this study are included in the manuscript.

Ethics Statement: Not applicable.

Author Contributions: Muhammad Saeed Shahbaz; conceived and designed the study, data collection, writing Asghar Ali; conducted data analysis, interpreted the results, reviewing and editing, writing.

Generative AI Statement: The author confirms that no generative artificial intelligence tools were used in the writing or preparation of this manuscript.

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