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An Assessment of the Socioeconomic Impact of Terrorism in Erstwhile FATA

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***Abstract*:** In this study, we focus on the impact of terrorism on the socio-economic conditions of erstwhile FATA. Using data from 384 participants across the region's seven districts, we employed a structured questionnaire based on a 5-point Likert scale. Data validity was ensured through expert opinion and reliability testing via factor analysis and Cronbach's Alpha. Descriptive statistics helped analyze participant perceptions, and the data were further validated through tests like KMO and Bartlett. Structural equation modeling (PLS-SEM) revealed a statistically significant and negative impact of terrorism on economic stability, social structures, education, healthcare access, and community safety. These findings underline that terrorism severely hampers socio-economic progress, highlighting the urgent need for targeted interventions to mitigate its effects. Future studies are required to include respondents from high-security threat areas, introduce factors other than socioeconomic factors, and utilize focus group discussion methods for data collection with a combination of questionnaires and interviews.

Keywords: Terrorism, Socio-Economic Impact, FATA, Structural Equation Modeling

1. Introduction

Terrorism remains a significant global issue, with its effects crossing borders and disrupting socio-economic stability. Over the past few decades, Pakistan has been at the center of this crisis, particularly in the region previously known as the Federally Administered Tribal Areas (FATA). Terrorism has not only damaged the socio-economic fabric of these areas but has also impeded development, increased unemployment, and worsened access to essential services (such as healthcare and education). The prevalent presence of terrorism in FATA has led to significant psychological, economic, and cultural challenges, leaving the region in a state of prolonged instability (Arshad, 2010; Bren et al., 2019).

As noted by various scholars, terrorism is more than just physical violence; it also has profound psychological and socio-political implications (Gupta, 2020). Townshend (2002) defines terrorism as "the calculated use or threat of violence to instill fear," which disrupts both societal norms and economic progress. In Pakistan, this is particularly evident in FATA, where terrorism has become intertwined with socio-economic hardships (Michael, 2007; Akhtar, Sajid, & Ahmad, 2021). The rise of extremism and insurgency in this region, particularly following the Russian invasion of Afghanistan in 1979, brought new challenges to Pakistan's internal security. The ongoing conflicts have

created an environment where terrorism thrives, further destabilizing communities and discouraging investment (Durrani, 2020; Hussain, 2022).

1.1 Research Gap

The FATA region's unique socio-political and historical context demands a deeper investigation into the broader consequences of terrorism. Firstly, the lack of consensus on the definition of terrorism, as noted by Hase (2023), is particularly significant for Former FATA. This ambiguity complicates efforts to analyze terrorism's impacts, making it vital to establish a context-specific definition for accurate assessment and response. Similarly, the inconsistent terminology across countries and organizations, highlighted by Hassan and Khurshid (2020), further complicates the evaluation of terrorism in the region, necessitating a nuanced understanding of its unique dynamics. Secondly, challenges in data collection due to security concerns and restricted access, as outlined by Shabbir et al. (2020), also impede a comprehensive analysis. This limitation has left significant gaps in understanding the full extent of terrorism's socioeconomic effects on the region's marginalized communities. Moreover, the complexity of terrorism's impact on people and societies, as emphasized by Birkmann et al. (2022), demands an in-depth study of Former FATA's prolonged exposure to conflict. This region has faced substantial disruptions to livelihoods, infrastructure, and social cohesion, necessitating a detailed exploration of these effects to develop targeted recovery strategies. Thirdly, as Singh and Philip (2022) further underline the lack of comparative assessments between terrorist-affected regions, which could provide valuable insights into FATA's unique challenges. Comparative studies would help identify similarities and differences in terrorism's impact, aiding in the formulation of context-specific interventions. Finally, the scarcity of research on the long-term effects of terrorism, as discussed by Haghani et al. (2022), is especially relevant to Former FATA. Beyond immediate consequences, understanding the region's long-term socioeconomic repercussions is crucial for post-conflict recovery and sustainable development.
Bridging these gaps is essential to comprehensively address the challenges faced by the Former FATA and develop effective strategies for rehabilitation and peacebuilding in the region.

1.2 Problem Statement

The prolonged impact of terrorism in the erstwhile FATA regions has severely impeded the region's socioeconomic development. The rise of militant activity within FATA, which escalated into a widespread insurgency, destabilized the region's social and economic structures. In response, security services initiated military operations such as Operation Al-Maizan (2002-2006) and Operation Enduring Freedom (2001-2002) to curb radicalization and restore order. However, these efforts, though necessary, led to mass displacement, with nearly three million people classified as Internally Displaced Persons (IDPs) by 2009 (Salleh, Ahmad, & Jamil, 2018). Similarly, the post-9/11 era further exacerbated FATA's challenges, with U.S.-led counterterrorism operations significantly affecting Pakistan's tribal belt. Insurgency movements, supported by groups like Tehreek-e-Nifaz-e-Shariat-e-Mohammadi (TNSM), fueled further instability, reshaping the region's socioeconomic landscape. Studies by Ahmed et al. (2023) and Malik and Shah (2022) highlight the long-term consequences of this unrest, pointing to enduring issues such as psychological trauma, economic dislocation, and social upheaval. Further, research by Zaman et al. (2022) and Khan and Rahman (2023) emphasize the intricate linkages between prolonged conflict and socioeconomic disruption, while reports from Human Rights Watch and the United Nations Development Program (UNDP) underline the ongoing struggles in access to basic services, mental health care, and economic rehabilitation.
Addressing the complex and multifaceted impacts of terrorism in former FATA regions requires a comprehensive approach. This study aims to synthesize insights from previous research and policy reports to develop a nuanced understanding of the socioeconomic effects on the region's population. By doing so, it seeks to inform targeted interventions that promote long-term recovery, sustainable development, and peacebuilding in the region.

1.3 Research Question

What is the effect of terrorism on the socio-economic conditions of Erstwhile FATA regions?

1.4 Significance of the Study

This study critically examines the profound effects of terrorism on the socioeconomic landscape of the erstwhile FATA regions. As a historically significant region located on the Pakistan-Afghanistan border, FATA has long been a center of military operations and terrorist activities, making it essential to understand the broader socioeconomic consequences of these conflicts. This study offers valuable insights into the multifaceted

socioeconomic disruptions caused by terrorism, identifying the specific regions and sectors most affected. It also analyzes the impact of military operations conducted in response to terrorism, providing clarity on the alterations within the region's socioeconomic structure. By offering a detailed analysis, the study significantly enhances the understanding of the far-reaching effects of both terrorism and military actions in FATA. The findings of this research are not only crucial for academic discourse but also for policymakers, government agencies, and organizations involved in post-conflict rehabilitation and development. The study equips these stakeholders with essential data to devise targeted interventions that address the socioeconomic challenges faced by affected communities. Moreover, the research serves as a foundation for further exploration into related areas, such as post-conflict reconstruction, governance in conflict zones, and the human rights implications of prolonged conflict. By highlighting the socioeconomic aspects of conflict in FATA, this study contributes to formulating informed policies and initiatives that can foster long-term stability and sustainable development in the region. It encourages further scholarly inquiry into the long-term consequences of terrorism, advancing the understanding of the intricate dynamics between conflict, socioeconomic disruption, and post-conflict recovery.

The rest of the study consists of section two documents the previous work in the context of terrorism and socioeconomic factors in erstwhile FATA and leads to research gaps and hypotheses development. The next chapter explains the methodology of the study. Section four presents the analysis utilizing SPSS and SEM. Chapter five discusses the findings, implications, limitations, and future research directions.

2. Literature Review

The erstwhile FATA regions, now part of Khyber Pakhtunkhwa (KP) province, existed as a separate political entity until 2018. Due to its geographical proximity and shared ethnic composition with adjacent regions such as Khyber Pakhtunkhwa, northern Baluchistan, and Afghanistan, the political, social, and cultural history of FATA is closely intertwined with these areas. To understand the socio-political and economic context of this region, the literature review is divided into three broad key sections including the political history of FATA, terrorism, and the socio-economic impact of terrorism (discussed below).

2.1 Political History of FATA

The political history of FATA, shaped by its strategic location and unique administrative structure, has been extensively documented in historical and political literature. Ethnic homogeneity with surrounding Pashtun regions and its status as a frontier zone under British India and later Pakistan contributed to its distinct governance model. Key sources on FATA's political history include books titled as: “The North West Frontier Essays on History” by Sultan-e-Rome (2013) and “The Pathan” by Olaf Careo (1958). These works explore British colonial policies, the Durand Line's political implications, and the role of influential figures like Bacha Khan and his Khudai Khidmatgar movement, which shaped Pashtun's resistance to colonial rule.

Sultan-e-Rome provides a comprehensive overview of the historical events that led to FATA’s governance under the Frontier Crimes Regulation (FCR) and the role of political agents in maintaining administrative control. Meanwhile, Careo’s writings emphasize the broader socio-political dynamics of the Pashtun people across FATA and adjacent areas. His analysis highlights the complex relationship between tribal customs and external political forces.

The creation of FATA as a separate entity under British rule, as discussed in “The Frontier Tribal Belt, Genesis, and Purpose Under the Raj” by Salman Bangash (2016), focuses on the "Great Game" geopolitics of the 19th century. This work delves into British motivations for establishing a buffer zone, the demarcation of the Durand Line, and the implementation of the FCR, which institutionalized the administrative and legal framework of FATA.

The “Khyber Pakhtunkhwa, A Political History (1901-1955)” by Dr. Fakhr-ul-Islam, further explores the regional political developments, including the creation of NWFP, the rise of political movements like the Muslim League and Khudai Khidmatgar, and the eventual integration of FATA and frontier states like Swat and Dir into Pakistan post-independence.

2.1.1 Religious and Political Roots of Militancy

“Islam in the Indo-Afghan Borderland” by Sana Haroon (2007) is fundamental to understanding the roots of militancy in FATA. She traces the strategic manipulation of religious leaders and tribal affiliations by both the British colonial administration and later the Pakistani state to serve geopolitical interests. This analysis sheds light on the origins of religious extremism and militancy, particularly the role of Pakistan and the United States in

supporting religious militias during the Soviet-Afghan War. Similarly, "Religious Militancy in Pakistan" by Khadim Hussain (2013) critically examines the socio-political conditions that fostered the rise of militancy in FATA. Hussain's work highlights the state's failure to address the underlying causes of extremism, which have deep roots in the political narrative surrounding Pakistan's creation and the instrumentalization of religion in governance.

2.1.2 Governance and Administrative Structure

The administrative framework of FATA, heavily influenced by colonial practices, persisted under Pakistan's governance until its merger with Khyber Pakhtunkhwa in 2018. A series of research articles by Ullah (2013, 2015, 2016) provide valuable insights into the evolution of FATA's governance structure, the role of the FCR, and subsequent reforms. Ullah argues that while FATA remained marginalized for decades, efforts were made over time to integrate the region into Pakistan's legal and political systems, culminating in its formal merger with Khyber Pakhtunkhwa. These works underscore the complexities of governing a region with deeply rooted tribal systems and the challenges of implementing reforms that promote political and social equality.

2.2 Terrorism in FATA

Chaudhry and Wazir (2012) argue that militancy in erstwhile FATA stemmed from the Russian invasion of Afghanistan, subsequent civil wars, the Taliban takeover, and post-9/11 US attacks on Afghanistan. The failure of the Pakistani state to provide basic social goods allowed militants to thrive. The militants' migration to FATA after the US invasion of Afghanistan was attributed to historical ties, and the Pakistan military's operations were insufficient to eliminate the insurgency permanently. The authors suggest a multifaceted approach, combining military, political, and social reforms, to restore peace in the region. Likewise, Shah (2012) highlights that militancy in FATA originated from the 1978 Afghan communist revolution. Poverty, underdevelopment, illiteracy, and lack of infrastructure in FATA further fueled terrorism. US and NATO forces displaced militants from Afghanistan, leading to their settlement in FATA. Shah emphasizes that Pakistan's military efforts were questioned by the US, and reform initiatives such as the extension of the Political Parties Act to FATA in 2011 were essential but insufficient without broader developmental efforts.

Moreover, Ali (2018) discusses the history of militancy in FATA, attributing it to administrative neglect under both British and Pakistani rule. He emphasizes the need for reforms in FATA, proposing its merger with Khyber Pakhtunkhwa as a viable solution supported by political parties. Ali stresses that political reforms should be coupled with socio-economic development to eradicate militancy permanently. Khan et al. (2016) argue that political marginalization in FATA has perpetuated militancy. They propose incorporating FATA into Khyber Pakhtunkhwa or declaring it a separate province as a permanent solution to its political, economic, and social backwardness. Similarly, Yadav (2019) contends that militancy in FATA is the result of social engineering and neglect. The author calls for a holistic approach to achieve peace, emphasizing political reforms, and developmental programs, and restoring confidence in state institutions to resolve the region's long-standing issues.

In a similar study, Sultana (2008) discusses the rise of the Taliban in FATA and how it spread across the country. She correlates the foundation of Pakistan on Islamic ideology with the subsequent rise of Talibanization and its impact on regional peace. Khan and Hussain (2021) analyze the political and administrative reforms in FATA, advocating for its merger with Khyber Pakhtunkhwa. They argue that reforms must be accompanied by development to prevent the resurgence of militancy. Yousaf (2021) discusses the historical context of militancy in FATA from 2001 onwards. He details the adverse effects of military operations, CIA drone attacks, and the rise of the Pashtun Tahafuz Movement, which holds the military accountable for human rights violations.

Khan et al. (2021) focus on military operations and peace deals between the government and militants in North and South Waziristan, critiquing Pakistan's security-centric approach to FATA. Abbasi et al. (2018) evaluate the effectiveness of Pakistan's military operations in FATA, emphasizing the role of US and NATO involvement and how the militants utilized FATA as a base for guerrilla warfare against coalition forces. Bazai (2016) explores Pakistan's military responses in FATA, highlighting the complexities of Pakistan-US relations and the human and economic losses suffered by Pakistan in the region.

Ijaz and Jafri (2021) argue that militants exploited the socio-political neglect of FATA. They suggest that the post-merger focus should be on addressing economic, social, and political challenges to ensure permanent peace. Bashir (2021) attributes the rise of militancy to Pakistan's involvement in the US-NATO war in Afghanistan, noting the emergence of groups such as Tehrik-e-Taliban Pakistan and their detrimental impact on Pakistan's security. Iqbal

and Alam (2020) examine the role of tribal Maliks in maintaining peace and law in FATA. The study reveals dissatisfaction among locals due to the Maliks' perceived self-interest and compliance with militant threats and government directives. Khan (2016) stresses the importance of political reforms in achieving lasting peace in FATA, arguing that the old administrative system fostered militancy and hindered socio-economic development. Gul (2008) discusses the impact of US and NATO attacks on Afghanistan, which led to the rise of militancy in FATA. The study highlights Pakistan's struggle to balance military operations with the need to minimize social and economic devastation in the region.

2.3 Terrorism's Impact on Socio-Economic Factors

Zeb & Ahmed (2019) examine militancy in FATA, applying Galtung's structural violence theory to link socio-economic issues like poverty, unemployment, illiteracy, inadequate health services, and poor infrastructure to terrorism. They highlight the devastation caused by military operations like Rah-e-Nejat and Zarb-e-Azb, with 60,000 homes, schools, and health units damaged, and only limited recovery of educational and healthcare facilities. Nasim (2023) similarly uses structural violence theory to explain how FATA's colonial administrative and legal frameworks marginalized its people, fueling militancy. Other scholars (such as Iqbal & Khan, 2014; Saeed & Khan, 2017; Qayum, 2020; Rahman et al., 2021), discuss the longstanding neglect and flawed governance of FATA, which led to human rights violations and stagnated socioeconomic development. They stress the need for reforms and the abolition of the Frontier Crimes Regulation (FCR). Mahsud et al. (2016) and Naseer (2015) explore FCR's colonial legacy, arguing it violated fundamental human rights. Shah and Faqir (2019) apply relative deprivation theory, linking FATA's lack of education, health, and economic opportunities to rising militancy. Yadav (2022) emphasizes human security, advocating for developmental priorities post-FATA's merger into Khyber Pakhtunkhwa.

The Path-Dependency theory (Khan, 2011) explains how historical governance policies created enduring socio-economic backwardness and lawlessness in FATA. Khan et al. (2023) argue the 25th constitutional amendment, which merged FATA with Khyber Pakhtunkhwa, was inevitable. Ghafoor (2009) and Yousaf et al. (2018) also highlight the socio-political challenges in FATA's integration into Pakistan, stressing that overcoming these impediments is vital for mainstreaming the region.

2.4 Underpinning Theory

This study utilizes weak state and nation-building theories to explain the impact of terrorism in FATA. Rotberg's (2004) weak state theory argues that FATA exemplified a weak state, where Pakistan failed to provide basic services like security, education, and healthcare. According to Rotberg, a weak state is characterized by an inability to deliver political goods—such as human rights, law and order, and infrastructure—necessary for stability. This theory aligns with the governance failures in FATA.

2.5 Theoretical Framework and Hypotheses

The theoretical model that follows, created after a substantial quantity of pertinent literature was reviewed and to keep the research topic in mind, clearly illustrates the link between the study's chosen independent and dependent variables.

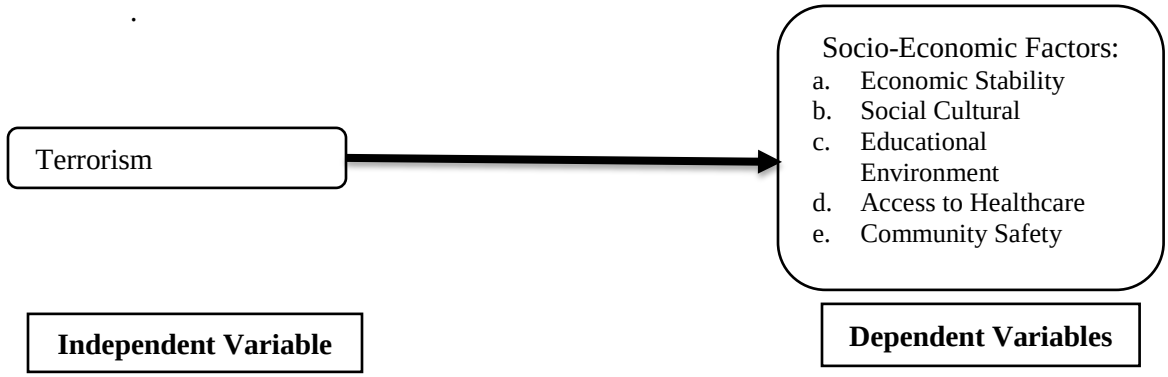

Figure 1: Conceptual Framework

Based on the literature reviewed and theoretical framework, the following study hypotheses are suggested for further evaluation:

H_1: Terrorism has a negative impact on socio-economic stability (economic, social, cultural, educational environment, access to health, and community safety) in erstwhile FATA regions.

3. Research Methodology

In this section, the sampling technique, collection of data, and statistical method for analysis are discussed.

3.1 Sample Size, Technique, and Procedure

The study population comprised all the inhabitants of erstwhile FATA regions living in seven districts of Khyber Pakhtunkhwa. Following Cochran's (1977) technique, the sample size was determined utilizing the following formula (Kamruzzaman et al., 2021; Hossain, 2022):

$$n = \frac{z^2 pq}{d^2} - - - - - - - - - - - - - - - - (1)$$

Here, z is the 95% confidence interval z=1.96, p is the probability of selecting a choice q = 1-p and d is the percentage allowed error here, d = 0.05 or 50%.

$$n = \frac{z^2 pq}{d^2} = \frac{(1.96)^2 0.5(1-0.5)}{(0.05)^2} = n = \frac{(3.8416)(0.25)}{0.0025} = n = \frac{0.9604}{0.0025} = n = 384.16 \cong \mathbf{384}$$

Based on the above the sample size must be 384, however, due to non-response or unwillingness or missing responses, additional 10% loading has been added resulting in a sample size of 422.

The study uses the probability sampling approach i.e., simple random sampling (SRS), and utilizes an equal size of 60 participants from each district of former FATA. These respondents were then guided and interviewed through an adapted questionnaire (from Ullah et al., 2017; Khan et al., 2019). Furthermore, a 5-point Likert Scale (ranging from strongly disagreed = 1 to strongly agreed = 5) was applied to collect the data responses.

3.2 Validity and Reliability of Questionnaire and Data

For this study, expert reviews assessed the validity, and improvements were made accordingly. Factor loadings from the analysis exhibit item validity, with values greater than or equal to 0.50 being acceptable and greater than or equal to 0.70 ideal (Hair et al., 2010). Similarly, the convergent and discriminant validity are key for SEM models. Average variance extract (AVE) values (see equation 2 below) less than 50% exhibit higher unexplained errors (Fornell & Larcker, 1981; Bhattacherjee, 2012).

$$AVE = \frac{\Sigma {\gamma_i}^2}{n} - - - - - - - - - - - - - - - (2)$$

Similarly, to measure the internal consistency, Cronbach's alpha (Cronbach, 1951) was used for this the acceptable coefficient value must be greater than or equal to 0.60. For PLS-SEM, composite reliability (CR) is more appropriate due to its ability to account for unequal item loading (see the following equation no. 3), with a recommended threshold of greater than or equal to 0.70 (Chin, 1998; Hair et al., 2014).

$$CR = \frac{(\Sigma \gamma_i)^2}{(\Sigma \gamma_i)^2 - (\Sigma \varepsilon_i)} - - - - - - - - - - - - - - - (3)$$

We began with preliminary analysis including descriptive statistics and data screening, factor analysis and PLS-SEM along with a series of statistical assumption tests using SPSS, MS Excel, and Smart PLS software.

3.3 Diagnostics and Data Screening

Basic frequency distribution has been obtained and used to screen out the irregular values (other than 1 to 5 numeric values). Outliers from the data were detected using box plot and Cook's distance approaches to evaluate the impact of outliers between the relationship of dependent and independent factors (Arimie et al., 2020). An estimated value of Cook's statistic greater than 0.25 exhibits significant impact, whereas a smaller value shows no effect of outliers. Similarly, the normality of the collected sample data is concluded by skewness along with kurtosis and QQ diagram (Mishra, et al., 2019).

Multicollinearity occurs when a strong correlation exists between variables. Eigenvalue and conditional index are used to test multicollinearity problem in the sample data. The assessed eigenvalue less than 1 and conditional index less than 30 illustrate no problem of multicollinearity (Snee, 1983).

3.4 Sampling Adequacy (KMO) Test for Factor Extraction

The Kiser-Meyer-Olkin (KMO) present in 3.5 is used to test the sampling i.e., sample data size; it also evaluates each item data suitable for the factor analysis. The KMO value lies between 0 and 1, and value close to 1 or more than 0.60 illustrates the data suitability for the factor analysis while a value less than 0.60 shows that it is not suitable for the factor analysis (Dodge, 2008).

$$KMO = \frac{\sum_{i \neq j} r_{ij}^2}{\sum_{i \neq j} r_{ij}^2 + \sum_{i \neq j} \mu} \text{ - (4)}$$

Further, the current study applied the confirmatory factor analysis (CFA) is considered as an appropriate approach to an already established structure. However, the validation of the structure is required only (Child, 2006).

3.5 Structural Equation Modeling (SEM) and Other related Diagnostics

SEM is the only suitable statistical method based on the defined objectives and hypothesis of the study and was chosen due to more than one dependent variable in the same model against a single independent variable, and due to ordinal data with a non-normal distribution (Chen, et al., 2001; Hair, et al., 2014; Schumacker & Lomax, 2016). Furthermore, in the context of PLS-SEM, we applied the composite reliability (CR) and ranked items with their reliabilities instead of treating all equally (Hair et al., 2014). The suggested threshold for CR is 0.70 or greater (see Chin, 1998). Similarly, for convergent validity (CV) of data average variance extracted (AVE) is applied. CV validates and measures the items' relation and convergence within defined constructs. On the other side, AVA is the mean squared loadings of each indicator defined within the associated constructs. Statistically, if the AVE is greater than 0.50 it is considered good (Sarstedt et al., 2021).

Discriminant validity of the data was accessed through three approaches i.e., Forenell-Larcker Criteria, Hatertraint-Monotrait Ration (HTMT), and cross-loadings for testing that a linear latent construct measured is not a reflection of another one linear latent construct (Peter & Churchill, 1986; Kline, 2011; Haier et al., 2014; Hamid et al., 2017). According to the Forenell-Larcker criteria, the AVE square root in every latent construct must be greater than the other correlation values among the latent construct (Peter & Churchill, 1986). For cross-loadings, the loading item defined within the linear latent construct should be greater than other cross-loadings (Chin, 2010). Finally, for HTMT, two different critical values are used, first 0.85 by Kline (2011) and second 0.90 by Hamid et al. (2017). Hence, if HTMT value is greater than the critical values, the problem of discriminant validity in the latent construct is existing and a vice versa.

A value less than 5 of VIF shows no issue of modeling collinearity while a value more than 5 represent the presence of modeling collinearity in SEM (Hair et al., 2011).

$$V.I.F = \frac{1}{1-R_i^2} \text{----------(5)}$$

R_i is the variation explained for i^{th} linear latent construct.

3.6 Measurement of the Model

Based on the objectives of this study, the authors have provided two measurement models, i.e., terrorism data measurement model and military operation data mode (see in figures 2 and 3). The terrorism data measurement model consists a total of 43 items (3 for independent and 40 measuring five linear constructs). In the model economic stability (ES) is formed with 10 items, social cultural (SC) formed with 11, educational environment (EE) formed with 7, access to healthcare (AH) formed with 4 and community safety (CS) with 8 items.

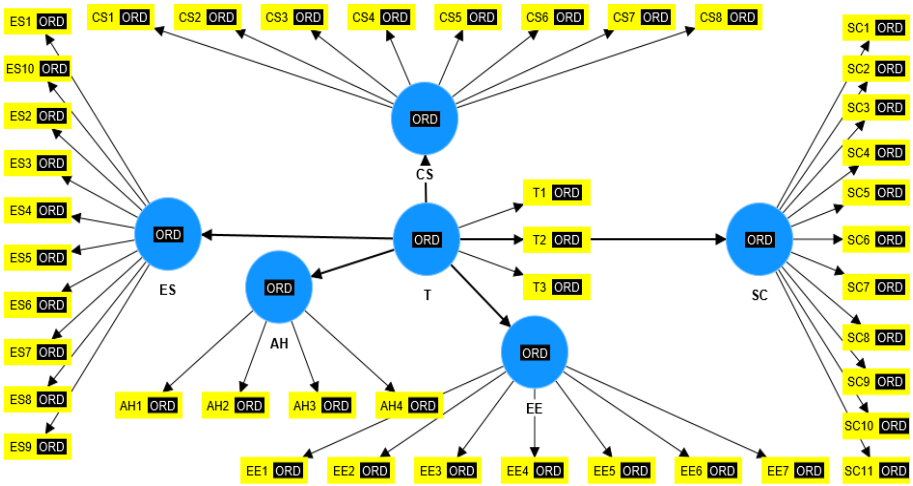

Figure 2: Terrorism Data Measurement Model

4. Analysis, Findings and Discussion

Under this section, the data collected from the participants regarding the impact of terrorism on socio-economic factors has been analyzed in two sections i.e., preliminary (basic trends, irregular value checks, outliers' detection, normality, multicollinearity, reliability, and validity checks) and exploratory (factor analysis and SEM) analyses.

4.1 Preliminary Analysis

Preliminary analysis was conducted using basic frequency and percentage tables, visualizations, and descriptive statistics[1]. The data, collected through a 5-point Likert scale questionnaire, was checked for irregular values, with any response outside the 1-5 range flagged as irregular. The demographic analysis revealed that 58.3% of participants were male, 41.7% female, with 62.8% aged 26-45, 35.7% aged 46-60, and 13.5% aged 18-25. Most participants (63.5%) resided in rural areas, and 76.8% had lived in areas under militant control, while 57.3% experienced military operations. Educational qualifications showed 46.6% of participants had up to a matric level education, 33.3% had bachelor's or master's degrees, and 20.1% had other qualifications. Participants' perceptions of terrorism indicated that 42.7% agreed and 42.2% strongly agreed about its negative socio-economic impact, while 34.9% strongly agreed and 50.0% agreed that terrorism was responsible for the low literacy rate.

Similarly, many participants (49.7%) agreed that religious influences contributed to the rise of terrorism. Regarding military operations, 44.0% agreed and 30.7% strongly agreed on their positive socio-economic impact, while 45.6% agreed and 31.3% strongly agreed that military operations were the best option to combat terrorism. The perception of economic stability indicated that 37.8% strongly agreed 37.7% agreed that militancy damaged the economy, and 38.8% agreed that it decreased job opportunities, trade, and industrial production. In terms of social culture, 43.8% agreed and 33.3% strongly agreed that militancy had a negative impact. Participants also indicated that militants restricted women's mobility, and 61.5% agreed that militants were aware of local culture and used it for their objectives.

In the context of education, 33.3% strongly agreed and 29.4% agreed that the educational system nearly collapsed under militants, with 52.1% agreeing that militants forbade female education. Perceptions of healthcare access showed that 32.0% strongly agreed and 22.9% agreed that the healthcare system was destroyed during militancy, while 39.1% strongly agreed the government ensured medical facilities during military operations. Community safety perceptions revealed that 55.7% agreed they felt unsafe during militant control, and 32.3% agreed that the community was not safe during military operations. The reliability of the collected data was analyzed using Cronbach's Alpha, with all values above 0.60 indicating acceptable reliability across the various factors, including terrorism ($\alpha = 0.931$), military operations ($\alpha = 0.911$), economic stability ($\alpha = 0.908$), social culture ($\alpha = 0.916$), and educational environment ($\alpha = 0.923$). The sample data was also checked for outliers using box plots, with Cook's distance used to assess their impact, and normality was confirmed through skewness and kurtosis values within ±1.96. Additionally, multicollinearity was tested using eigenvalue and conditional index, with no significant issues

[1] The preliminary analyses are not provided here to maintain sanctity, and the space is reserved for key findings and discussion, the preliminary results can be provided upon request.

detected.

4.2 Factor Analysis

We combine the factor analysis with the Kiser-Meyer-Olkin (KMO) test to examine sample data size and data suitability for the factor analysis. A value of KMO close to 1 or more than 0.60 illustrates the data suitability for factor analysis and its significance through Bartlett's test shows the sample size adequacy. We repeat this analysis for all study factors including terrorism, military operations, economic stability, social culture, educational environment, access to healthcare, and community safety.

4.2.1 Sampling Adequacy (KMO) Test

The KMO tests were conducted for terrorism (3 items), military operations (3 items), economic stability (10 items), social culture (11 items), educational environment (7 items), access to healthcare (4 items), and community safety (8 items). All tests were statistically significant (refer to Table 1 below), indicating that the sample sizes were adequate for factor analysis. Principal component analysis (PCA) was performed, and a single component was extracted for each factor, explaining the following variations: terrorism (87.98%), military operations (84.88%), economic stability (55.26%), social culture (55.79%), educational environment (76.36%), access to healthcare (79.86%), and community safety (52.55%).

Table 1: KMO and Bartlett's Test

Component	KMO	Bartlett's Approx. Chi-Square	DF	Sig.
Terrorism	0.751	974.436	3	0.000
Military Operations	0.744	799.064	3	0.000
Economic Stability	0.908	3093.079	45	0.000
Social Cohesion	0.888	3381.956	55	0.000
Employee Engagement	0.898	2634.630	21	0.000
Agency Health	0.773	1211.382	6	0.000
Community Support	0.814	1718.165	28	0.000

Source: Authors' own generated table from the data

4.2.2 Factor Extraction

The confirmatory factor analysis (CFA) results (refer to Table 2 below) confirm that all items are well-loaded onto their respective factors, with factor loadings above 0.500 for each item. The average factor loadings for each construct were as follows: terrorism (0.798), access to healthcare (0.703), military operations (0.652), social culture (0.640), community safety (0.626), educational environment (0.622), and economic stability (0.610). This supports that each factor forms a linear latent construct. As per Hair et al. (2014), factor loadings as low as 0.4 can be used in SEM models if composite reliability and average variance extracted (AVE) values are high.

Table 2: Component Matrix and Explained Variation

Component	Eigenvalue	% Variance	Factor Loadings for Each Item
Terrorism (T1, T2, T3)	2.639	87.980%	T1: 0.946, T2: 0.951, T3: 0.916
Military Operations (MO1, MO2, MO3)	2.546	84.882%	MO1: 0.938, MO2: 0.900, MO3: 0.926
Economic Stability (ES1 - ES10)	5.526	55.258%	ES1: 0.817, ES2: 0.788, ES3: 0.705, ES4: 0.818, ES5: 0.777, ES6: 0.684, ES7: 0.692, ES8: 0.743, ES9: 0.689, ES10: 0.703
Social Cohesion (SC1 - SC11)	6.136	55.786%	SC1: 0.751, SC2: 0.782, SC3: 0.833, SC4: 0.819, SC5: 0.801, SC6: 0.805, SC7: 0.823, SC8: 0.818, SC9: 0.691, SC10: 0.664, SC11: 0.642
Employee Engagement (EE1 - EE7)	5.345	76.360%	EE1: 0.893, EE2: 0.875, EE3: 0.891, EE4: 0.882, EE5: 0.887, EE6: 0.848, EE7: 0.839

Agency Health (AH1 - AH4)	3.195	79.863%	AH1: 0.868, AH2: 0.882, AH3: 0.913, AH4: 0.901
Community Support (CS1 - CS8)	4.204	52.553%	CS1: 0.731, CS2: 0.572, CS3: 0.762, CS4: 0.740, CS5: 0.604, CS6: 0.841, CS7: 0.718, CS8: 0.792

Source: Authors' own generated table from the data

4.3 Confirmatory Factor Analysis (CFA)

In the CFA model, a total of a total of 7 factors were included with different numbers of items. The Terrorism (T) and military operation (MO) each with 3 items, economic stability (ES) with 10, social-cultural (SC) with 11, educational environment (EE) with 7, access to healthcare (AH) with 4 and community safety (CS) with 8 items. The CFA results are not presented due to space limitations; however, they clarify that all the items defined within the factor are loaded in the same factor with a factor loading of more than 0.500 for each item. The average lading noted for T=0.798, AH=0.703, MO=0.652, SC=0.640, CS=0.626, EE=0.622 and ES=0.610. This shows that each factor is a linear latent construct. According to (Hair, et al., 2014), lower factor loadings as low as 0.4 can be used in the SEM model if the composite reliability along with AVE are high for that item.

4.4 SEM Model for Terrorism in Erstwhile FATA (SEM-TEF)

In this section, the SEM-TEF data were carried out using SmartPLS along with exploring the data reliability, convergent, and discriminant validity, SEM model assumptions, and performance. Table 3 presents a reliability analysis and convergent validity of SEM-TEF consisting of results of Cronbach's Alpha, composite reliability (CR), and average variance extracted (AVE) for the estimated model. The estimated results of the Cronbach's Alpha for all linear latent constructs recorded more than 0.868 showing strong internal consistency of listed items within each factor. Furthermore, CR for all the linear latent constructs noted more than 0.881. Similarly, the AVE minimum noted 0.523 for community safety and maximum noted 0.880 for terrorism describing the convergent validity of SEM-TEF model data.

Table 3: Reliability Analysis and Convergent Validity of SEM-TEF

Linear Latent Constructs	**Cronbach's Alpha**	**CR (rho_a)**	**CR (rho_c)**	**(AVE)**
Access to Healthcare	0.916	0.921	0.941	0.799
Community Safety	0.868	0.881	0.897	0.523
Educational Environment	0.948	0.950	0.958	0.763
Economic Stability	0.909	0.912	0.925	0.552
Social Cultural	0.918	0.931	0.931	0.558
Terrorism	0.932	0.933	0.956	0.880

Source: Authors' own generated table from the data

4.4.1 Discriminant Validity of SEM-TEF

The discriminant validity aims to test that a linear latent construct measured is not a reflection of another one linear latent construct (Peter & Churchill, 1986). As also mentioned earlier, discriminant validity of the data was accessed through three approaches i.e., Forenell-Larcker Criteria, HTMT, and cross-loadings. Table 4 presents the results of the Forenell-Larcker criteria. From the estimated results the Forenell-Larcker criteria is fulfilled as correlation within constructs noted higher 0.894, 0.723, 0.874, 0.743, 0.747, and 0.938 from correlations with other constructs. This validates the discriminant validity of the defined structural model for terrorism data.

Table 4: The Forenell-Larcker Criteria SEM-TEF

Linear Latent Constructs	***AH***	***CS***	***EE***	***ES***	***SC***	***T***
Access to Healthcare (AH)	**0.894**					
Community Safety (CS)	0.353	**0.723**				
Educational Environment (EE)	0.333	0.455	**0.874**			
Economic Stability (ES)	0.266	0.720	0.430	**0.743**		
Social Cultural (SC)	0.338	0.655	0.539	0.610	**0.747**	
Terrorism (T)	0.373	0.76	0.510	0.673	0.684	**0.938**

The measurement of discriminant validity through Cross-loading has been conducted and noted that the loading of each item defined within the construct found their values higher from the cross illustrating the discriminant validity of the terrorism model data structural model. In addition, Table 5 presents the most reliable measure of discriminant validity HTMT results. From the estimated results of HTMT, the maximum value noted is 0.834 showing all the estimated values are less than the defined critical levels of 0.85 and 0.90. This shows the discriminant validity of linear latent constructs for the defined structural model of terrorism data.

Table 5: Hatertrait-Monotrait Ratio (HTMT) SEM-TEF

Linear Latent Constructs	**AH**	**CS**	**EE**	**ES**	**SC**	**T**
Access to Healthcare (AH)						
Community Safety (CS)	0.400					
Educational Environment (EE)	0.354	0.492				
Economic Stability (ES)	0.291	0.825	0.461			
Social Cultural (SC)	0.363	0.733	0.613	0.646		
Terrorism (T)	0.402	0.834	0.539	0.689	0.730	

4.4.2 Multicollinearity Diagnosis of SEM-TEF: VIF Approach

Table 6 describes the estimated results of VIF for the terrorism data model. The estimated values of VIF for each latent construct noted less than 5 suggesting no problem of collinearity in the defined terrorism data model.

Table 6: Collinearity Diagnosis SEM-TEF

Linear latent Constructs	**VIF**
Terrorism -> Access to Healthcare	1.180
Terrorism -> Community Safety	1.023
Terrorism -> Educational Environment	1.229
Terrorism -> Economic Stability	1.136
Terrorism -> Social Cultural	1.023

4.4.3 Model Fitness for SEM-TEF (R^2)

According to Chin (1998) a value of R-square equal to 0.67 or greater shows a substantial role, 0.33 moderate, and 0.19 weak role in the defined SEM model. Table 7 presents the R-square results for the defined terrorism structural model. The R-square value for access to healthcare was 0.139, for community safety 0.583, for educational environment 0.260, for economic stability 0.406, and social-cultural 0.468. This illustrates that access to healthcare shows a weak role, educational environment, community safety, economic stability, and social-cultural show a moderate role.

Table 7: SEM-TEF Model Fitness (R^2)

Linear Latent Constructs	R^2	**Adjusted** R^2
Access to Healthcare (AH)	0.139	0.137
Community Safety (CS)	0.583	0.582
Educational Environment (EE)	0.260	0.258
Economic Stability (ES)	0.406	0.405
Social Cultural (SC)	0.468	0.467

Table 8 shows the results of the effect size for each construct of the estimated SEM-TEF model. In SEM the effect size or F^2 statistic measures the impact of change in the coefficient of determination statistic (R^2) by ignoring the independent latent construct (Hair et al., 2011). An estimated value of F^2 0.02 or less signifies small effects, 0.15 to 0.34 medium, and 0.35 and greater values demonstrate large effects of the independent latent constructs according to (Cohen, 1988). From the analysis, all three types of small, medium, and large impacts were noted on latent constructs. The effect of access to healthcare noted medium as a value recorded 0.162, for community safety, educational environment, economic stability, and social culture noted large with 1.397, 0.351, 0.648, and 0.879 values respectively.

Table 8: SEM-TEF Effect Size

	F-square	*Effect Size*
Terrorism -> Access to Healthcare	0.162	Medium
Terrorism -> Community Safety	1.397	Large
Terrorism -> Educational Environment	0.351	Large
Terrorism -> Economic Stability	0.648	Large
Terrorism -> Social Cultural	0.879	Large

4.4.4 Path Coefficient Significance of SEM-TEF (β Value)

Table 9 presents the significance of the path coefficients for the SEM-TEF model based on a bootstrapping process with 5000 sub-samples to evaluate the importance of SEM-TEF path coefficients. From the estimated bootstrapping process, the estimated path coefficient of SEM-TEF was noted as significant with P-values of 0.00. This illustrates the impact of the independent construct on the dependent. In addition to this, all the coefficients for the linear latent constructs were noted as positive clearly showing the participants the agreement level of the high negative impact of terrorism (T) on dependent latent constructs. Furthermore, figure 3 shows SEM-TEF estimated model path coefficients along with factor loadings of the original model. Figure 4 shows SEM-TEF bootstrapped model path coefficients and T-statistic and P values for each item defined within the latent construct.

Table 10: Path Coefficient Significance of SEM-TEF

	Original sample	***Sample mean***	***Standard deviation***	***T-statistics***	***P-value***
T -> Access to Healthcare	0.373	0.373	0.047	7.963	0.00
T -> Community Safety	0.763	0.764	0.031	24.457	0.00
T -> Educational Environment	0.510	0.510	0.049	10.306	0.00
T -> Economic Stability	0.637	0.637	0.052	12.320	0.00
T -> Social Cultural	0.684	0.683	0.046	14.746	0.00

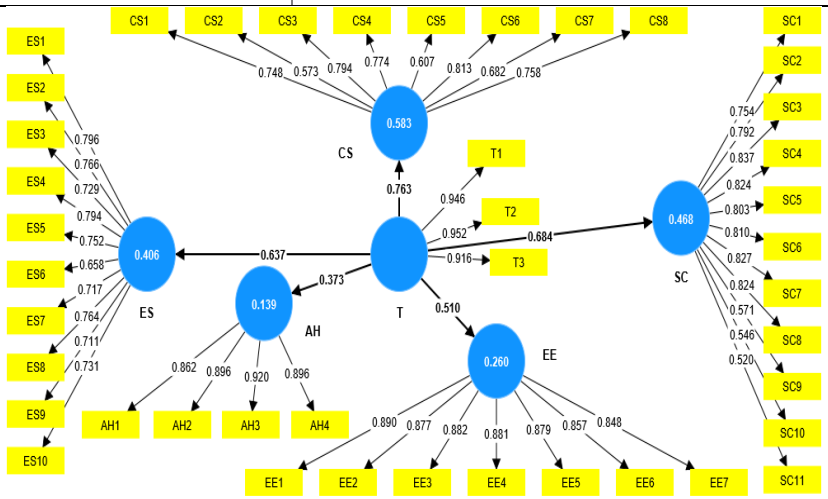

Figure 3: SEM-TEF Estimated Model

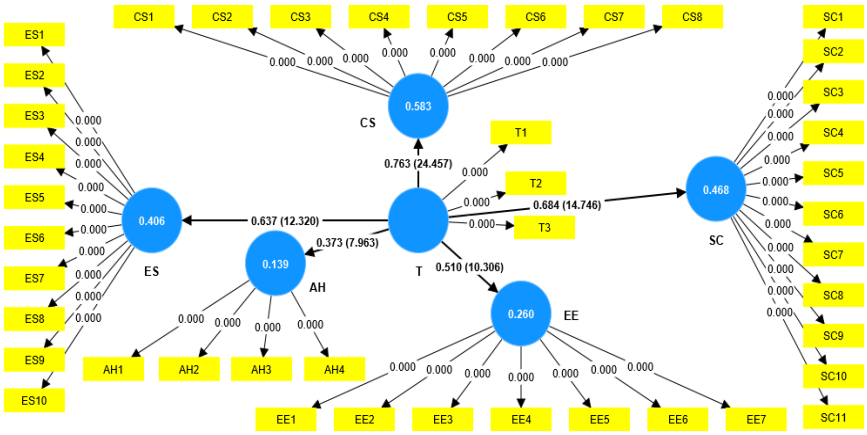

Figure 4: SEM-TEF Bootstrapped Model

4.5 Discussion on Findings

The study hypothesis was "terrorism has a negative impact on socio-economic stability (economic, social, cultural, educational environment, access to health, and community safety) in erstwhile FATA regions." In light of this hypothesis, the study findings and their discussion are presented below.

The findings of SEM-TEF show that the factor economic stability (ES) is measured by 10 items, with reliability statistic Cronbach's alpha (CA) value of 0.909, composite reliability (CR) of 0.912, and AVA 0.552. In addition to this R-square found 0.406 and F-square 0.648 > 0.34. The reliability statistics CA and CR demonstrate high reliability of the latent construct ES and 55.2% extracted variation by defined ES latent construct, the R-square shows 40.6% explained variation by ES latent construct in the model and the F-square shows a large effect size of ES. The path coefficient 0.637 of ES indicates the positive effect of terrorism on ES which is in line with the participant's perception. The SEM analysis shows a strong and statistically highly significant link between terrorism and economic stability, as specified by the estimated t-value of 12.320, exceeding the critical value of 1.96 with a P-value of 0.00 significantly lower than the defined threshold of 0.05. The findings of the study align with the findings of Chughtai (2013) and Shah and Faqir (2019) describing the negative impact of terrorism on the economic stability of FATA.

The findings of SEM-TEF show that the factor social culture (SC) is measured by 11 items, with reliability statistic Cronbach's alpha (CA) value of 0.918, composite reliability (CR) of 0.931, and AVA 0.558. In addition to this R-square found 0.468 and F-square 0.879 > 0.34. The reliability statistics CA and CR demonstrate high reliability of the latent construct SC and 55.8% extracted variation by defined SC latent construct, the R-square shows 46.8% explained variation by SC latent construct in the model and the F-square shows a large effect size of SC. The path coefficient 0.684 of SC indicates the positive effect of terrorism on SC which is in line with the participant's perception. The SEM analysis shows a strong and statistically highly significant link between terrorism and social culture, as specified by the estimated t-value of 14.746, exceeding the critical value of 1.96 with a P-value of 0.00 significantly lower than the defined threshold of 0.05. The findings of the study align with the findings of Chughtai (2013), Yadav (2022), and Khan (2011) describing the negative impact of terrorism on the social culture of the people of FATA.

The findings of SEM-TEF show that the factor educational environment (EE) is measured by 7 items, with reliability statistic Cronbach's alpha (CA) value of 0.948, composite reliability (CR) of 0.950, and AVA 0.763. In addition to this R-square found 0.260 and F-square 0.351 > 0.34. The reliability statistics CA and CR demonstrate high reliability of the latent construct EE and 76.3% extracted variation by defined EE latent construct, the R-square shows 26.0% explained variation by EE latent construct in the model and the F-square shows a large effect size of EE. The path coefficient 0.510 of EE indicates the positive effect of terrorism on EE which is in line with the participant's perception. The SEM analysis shows a strong and statistically highly significant link between terrorism and the educational environment, as specified by the estimated t-value of 10.306, exceeding the critical value of 1.96 with a P-value of 0.00 significantly lower than the defined threshold of 0.05. The findings of the study align with the findings of Ali and Khan (2023) and Ghafoor (2009) describing the negative impact of terrorism on the educational environment in FATA.

The findings of SEM-TEF show that the factor access to healthcare (AH) is measured by 4 items, with reliability statistic Cronbach's alpha (CA) value of 0.916, composite reliability (CR) of 0.921, and AVA 0.799. In addition to

this R-square found 0.139 and F-square 0.162 > 0.15. The reliability statistics CA and CR demonstrate high reliability of the latent construct AH and 79.9% extracted variation by defined AH latent construct, the R-square shows 13.9% explained variation by AH latent construct in the model and the F-square shows a medium effect size of AH. The path coefficient 0.373 of AH indicates the positive effect of terrorism on AH which is in line with the participant's perception. The SEM analysis shows a strong and statistically highly significant link between terrorism and access to healthcare, as specified by the estimated t-value of 7.963, exceeding the critical value of 1.96 with a P-value of 0.00 significantly lower than the defined threshold of 0.05. The findings of the study align with the findings of Shah, Parveen, and Khalil (2019) describing the negative impact of terrorism on the healthcare in FATA.

The findings of SEM-TEF show that the factor community safety (CS) is measured by 8 items, with reliability statistic Cronbach's alpha (CA) value of 0.868, composite reliability (CR) of 0.881, and AVA 0.523. In addition to this R-square found 0.583 and F-square 1.397 > 0.34. The reliability statistics CA and CR demonstrate high reliability of the latent construct CS and 52.3% extracted variation by defined CS latent construct, the R-square shows 58.3% explained variation by CS latent construct in the model and the F-square shows a large effect size of CS. The path coefficient 0.763 of CS indicates the positive effect of terrorism on CS which is in line with the participant's perception. The SEM analysis shows a strong and statistically highly significant link between terrorism and community safety, as specified by the estimated t-value of 24.457, exceeding the critical value of 1.96 with a P-value of 0.00 significantly lower than the defined threshold of 0.05. The findings of the study align with the findings of Yadav (2022), Chughtai (2013), and Khan (2011) describing the negative impact of terrorism on the community safety in FATA.

5. Conclusion and Recommendations

5.1 Conclusion

The primary objective of this study was to analyze the socio-economic impacts of terrorism in erstwhile FATA regions. For this purpose, the data was collected through a self-developed valid questionnaire from 384 participants of the erstwhile FATA regions. Analysis of collected data has been carried out using SPSS, MS Excel, and SmartPLS using the PLS-SEM approach, and the SEM-TEF model was estimated. From the estimated model's reliability, convergent, and discriminant validity analysis it has been conducted that the collected data is reliable and also convergent and discriminant valid. Furthermore, from the estimated model's fitness statistic R-square and effect size statistic F-square results it has been concluded that models fit to the data and all the three size effects small, medium, and large are present in the terrorism on socio-economic factors. In addition to this, it has been concluded from the SEM-TEF model there statistically highly significant negative impact present of terrorism on socio-economic factors. This shows with terrorism there is no possibility for socio-economic development.

5.2 Recommendations

From the findings of research impact of terrorism on socio-economic factors in erstwhile FATA the following recommendations have been made:

A negative impact of terrorism has been found on the socio-economic factors of erstwhile FATA such as economic stability, social-cultural, educational environment, access to healthcare, and community safety. Based on these findings it is strongly recommended that the government authority end the terrorism from the area to make the people of erstwhile FATA economically stable. Due to the militant typical minds and different cultures, the social culture status of the people living in the erstwhile FATA changed forcefully by eliminating the militants from the area will recover the social culture of the people. It is well known that militants are against the educational system of Pakistan, especially for females almost more than half of the educational institutes are finished and closed forcefully. Eliminating the militants will provide both males and females with a safe educational environment. It is further recommended to the government authority to make standard hospitals and medical institutes for easy access to healthcare as people living in the area face difficulties in access to healthcare within the region. Also, it is strongly recommended that the government should facilitate the local police to increase patrolling as people living in the areas do not feel safe.

5.3 Limitations and Future Directions

This research study has the following limitations:

1. Due to limited resources the sample of the study is very small including more respondents in the sample will

bring much better results.

2. The data collection has been made in the areas where no high-security threat by including respondents from highly insecure areas of the regions the results may vary.
3. In the main theme of the study limited social-economic factors have been included in the study including more factors that will bring a clear image of terrorism and military operations.
4. Only a quantitative study has been conducted as the respondents' responses are limited to close-end questions by including open-ended questions, and focus group discussion will make the results much clearer.

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