Applied Economics Journal Vol. 28 No. 2 (December 2021): 82-106

ISSN: 2586-9124 (PRINT)
ISSN: 2586-9132 (ONLINE)

Received: 9 August 2020
Received in revised form: 31 October 2020
Accepted: 16 November 2020

Economics of Armed Conflicts and Governance: An Empirical Study Focusing on South Asia

Hidayat Ullah Khan
Department of Economics, National University of Modern Languages (NUML), Islamabad
Leena Rehman
Department of Economics, Kohat University of Science & Technology, Pakistan
Alam Khan
Department of Economics, Kohat University of Science & Technology, Pakistan
Hameed Khan*
Department of Economics, Kohat University of Science & Technology, Pakistan

Abstract

This study examines the effects of governance on armed conflict and the associations between economic factors, external finances (remittances), natural calamities, and armed conflicts. Panel data are used covering the South Asia region from 2002 to 2018, applying the logit and ARDL models. Based on the logit analysis, the results show that government effectiveness, political stability and absence of violence/terrorism, and regulatory quality, the rule of law, and droughts/floods have a negative relationship with armed conflict. On the other hand, population, remittances, and voice and accountability have positive association with armed conflict. Based on ARDL estimations, government effectiveness, a proxy variable for governance, political stability and absence of violence/terrorism, and the rule of law have negative and highly significant

*Corresponding Author, Address: Department of Economics, Kohat University of Science & Technology, Kohat, 26000, Pakistan. E-mail: hameed.qec@gmail.com

association with armed conflict. It is implied that good governance can reduce the likelihood of armed conflict, while population and remittances can fuel armed conflict. Moreover, natural calamities have an inverse relationship with armed conflict. Surprisingly, conflicts help increase the voice of and demand for accountability by general public in the conflict zone.

Keywords: armed conflict, governance, political stability, ARDL, South Asia
JEL Classification: C3, F5, F6

1. Introduction

The 21st century has uncovered many issues that captured the attention of masses, researchers, and academicians alike. Among these, armed conflict has become a source of great concern for the entire world bearing in mind its devastating effects on the inhabitants of the conflict zone. To date, armed conflict surpassed the much-debated challenges like climate change, arms race, and depletion of natural resources. In fact, armed conflict is a global threat for humanity which has grown exponentially in the aftermath of 9/11. Since then, armed conflicts are transforming into a human crisis with local, regional, and global repercussions. However, armed conflicts' prevalence in developing nations, characterized by dense populations and fragile states, is higher than that of developed countries. When we look at the South Asian region, it has a long history of armed conflict and subsequent violence.

South Asia, which comprises Afghanistan, Bangladesh, Bhutan, India, Maldives, Nepal, Sri Lanka, and Pakistan, is inhibited by one-fifth of the world's population (for cross-country descriptive statistics, please refer to Appendix Table 1). Unfortunately, it is one of the most affected regions of the world when it comes to armed conflicts. The armed conflicts in this region have claimed over 4700 human lives in 2007 alone (Iyer, 2011), which represents a quarter of the fatalities across the world that result from acts of violence. When it comes to deadly terrorist groups, the *Taliban* are among the deadliest armed factions of the region. The group is responsible for over 94 percent of terror-related deaths in Afghanistan (Ruiz Estrada, Park, Khan, & Tahir, 2018). Countries like Afghanistan, Pakistan, Sri-Lanka, and India in the region have the highest number of fatalities from armed conflicts (Institute for Economics and Peace, 2017). Apart from loss of precious human lives, armed conflicts have caused economic losses worth billions of dollars in the

member countries. Henceforth, these conflicts have huge human and economic repercussions for the region.

The human and economic cost of armed conflict has resulted in unprecedented socioeconomic and geopolitical transformations in the region. Tolerance for the perpetrators of armed conflict is getting thinner among the general public each passing day. Voices and/or resistance against armed conflict and its perpetrators are growing within the societies owing to the devastating effects that armed conflicts have had on the lives of the public and on overall governance.

The existing literature shows an association between governance and economic growth and development (Brooks, 2009; Oh & Oetzel, 2011). According to Makinda (2003), governance refers to the authority which is essential for making and implementing political decisions according to the aspirations of stakeholders. However, formal structures, i.e., institutions, are essential for good governance, economic growth, and development of a nation. These structures are essential for law and order, political stability, and provision of basic amenities to the general public (Makinda, 2003).

Some of the South Asian nations have decade-long territorial disputes and subsequent armed conflicts. For instance, India and Pakistan have had border tensions and territorial disputes over Jammu and Kashmir region for more than seven decades. Moreover, India also has border disputes with other regional countries like Nepal and Bangladesh, as well as non-regional countries like China. Similarly, Pakistan, which is the second most influential country of the region, also has border disputes with Afghanistan and Iran. The region is an epicenter for a “game of thrones” amongst global and regional powers. The most prominent conflict may have been the US-backed Afghan *Jihad* against the former USSR and the more recent global war on terror that was staged in Afghanistan. These tug-of-wars among local and global players make the region an ideal breeding place for militants and armed conflicts, which have strong implications for local populations, governments, governance, and economic activity, bearing in mind a thriving conflict economy behind the scenes. Persistent conflict has eroded the governance and accountability structure of the region. As a result, the region is witnessing an array of social evils that characterize bad governance, such as corruption, poor law enforcement, and an overall weakened justice system.

Meanwhile, local and foreign media constantly highlight the weak governance of the region (Morse, 2011) . According to S. Morse (2019) Afghanistan and Bangladesh are ranked as the 173rd

and 126th least corrupt countries, respectively, among 180 nations. Countries like New Zealand and Demark, which have no conflict with other countries and are strong believers of the democratic values, are at the top of the list.

Military spending of the South Asian nations is very high compared to their western counterparts, as described in Table 1. The military spending of Pakistan and India are over 4% and 2% of their GDP, respectively. Therefore, the interplay of armed conflict and governance is worth investigating. Moreover, Figure 1 elaborates on the military spending of the Asian countries. The figure exhibits that Pakistan and India are gearing up for an arms race in the region, which has been depicted by the red and dark green portions of the figure, amidst an upsurge of unemployment and rampant corruption.

Table 1: Corruption (governance) and defense budget

Country	CPI score 2019	Rank	Military expenditure (% of GDP) in 2018
New Zealand	87	1	1.16 %
Denmark	87	1	1.18 %
Finland	86	3	1.39 %
Sweden	85	4	1.04 %
Singapore	85	4	3.14 %
Bhutan	68	25	Not Available
India	41	80	2.41 %
Sri Lanka	38	93	1.89 %
Nepal	34	113	1.44 %
Pakistan	32	120	4.02 %
Bangladesh	26	146	1.36 %
Afghanistan	16	173	0.98 %

Note. Authors' calculation based on data from Transparency International 2019 and World Development.

CPI = Corruption Perception Index.

Furthermore, armed conflicts and military spending are interrelated. It has been observed that countries with higher military spending are frequently engaging with neighboring and regional countries through proxies. For instance, India and Pakistan have huge military spending and are engaged in fomenting internal armed conflicts for which both countries blame each other and neighboring countries.

Figure 1: Percent share of military expenditures in GDP (authors' calculations based on World Bank data)

Bearing in mind the importance of good governance vis-à-vis armed conflicts, it is worth exploring the role of governance as a tool to curb armed conflicts in South Asian countries. This study is novel in the sense that it attempts to explain the nexus among governance, corruption, rent seeking behavior, and armed conflicts. Moreover, the study is expected to identify policy guidelines crucial for enhancing the quality of governance to avoid armed conflicts. The existing literature gives mixed results. There is a lack of consensus among scholars about the possible effects of good governance on armed conflicts. This study will contribute to the exiting literature by bringing together two streams of literature from political economy and institutional economics.

According to existing literature, a number of studies have attempted to investigate the relationship between armed conflicts and governance, with different outcomes. For instance, governance can play a key role in a country's economic revival, and it can be used as an effective tool for combating armed conflicts and their adverse effects (Brooks, 2009). Some of the most influential studies attempt to establish a relationship between governance and armed conflicts (e.g., Akhmat et al., 2014; Asongu & Nwachukwu, 2017; Yiew et al., 2016).

The existing literature also establishes that armed conflict is directly related to population growth rate and remittances (Coccia, 2018). On the other hand, there persists an indirect association between natural calamities like droughts/floods and armed conflicts (King & Mutter, 2014, 2015). However, most of the existing studies (Brooks, Adger, & Kelly, 2005; Enders & Sandler, 2000; Khan, Khalid, & Elahi, 2020; Seitz, Tarasov, & Zakharenko, 2015), rely either on weak research frameworks or methodological approaches that fail to sufficiently explain the relationship between armed conflict and governance. Particularly, the existing literature does not consider economic factors and context-specific details explaining armed conflicts. There is genuine need for a study that considers the economic factors associated with armed conflict to fill in gaps in the literature about context-specific details.

This study is an attempt to fill gaps in the existing literature using contextual details about South Asia. We employ an in-depth empirical strategy by using panel data with additional variables that incorporate economic dynamics. This study is more diverse than previous ones in that it investigates relationships between governance, armed conflicts, natural calamities, and economic factors by using a better research framework and a robust analytical model. Furthermore, this study adopts a new approach to gauging armed conflicts by considering not only the incident but also the magnitude of the armed conflict using two different models with two dependent variables, the occurrence as well as number of violent events, which is innovative. Moreover, we have added new dimensions to the armed conflicts analysis, such as externalities (floods/draughts), remittances, and population.

Research objectives are: 1) to investigate association between the governance and armed conflicts, 2) to show the effects of external finances (remittances) on armed conflicts, and 3) to assess the relationship between natural calamities and armed conflicts. The rest of our study comprises Section 2, which reviews the related literature, Section 3 describing the methodology of the study, Section 4 reporting the results, and Section 5 the conclusions.

2. Literature review

Armed conflicts can severely affect the socioeconomic development of a country by consuming precious resources for nonproductive purposes. As far as South Asia is concerned, the region is confronted with rampant corruption, and much of its population is living below the poverty line (Khan, Khan, Jiang, & Khan, 2020). As established through the existing literature, armed

conflicts entail adverse consequences for the macroeconomic performance of the region, particularly as prolonged conflict tends to escalate the military spending of the nations. Subsequently, the cost of doing business rises due to excessive taxation, and economic leakages from corruption begin to affect all sectors of the economy (Khalid, Okafor, & Aziz, 2020). To follow, we highlight some of the important studies in this field.

The definition of "armed conflict" is controversial; however, based on ideological and political preferences, different scholars have defined armed conflict in different ways. "The armed conflict is non-provocative use or threat to use violence or brutality by an armed group(s) to achieve their political, religious, and ideological objectives through repression as a common mean, the armed groups are usually not directly involved in the political decision making" (Enders & Sandler, 2000). Armed conflict is differentiated from terrorism based on its time reference and perpetrators' capability. Armed conflicts prevail for a considerably long duration, and its perpetrators are known and have substantial military might. Therefore, nations affected by armed conflicts are prone to long-term social turmoil and face national security risk. Hence, these nations are making every possible attempt to address the armed conflicts.[1] Therefore, it is pertinent to explore and understand the underlying causes of the conflict.

2.1 Driving Factors of Armed Conflicts

A number of factors are associated with defense spending, such as rampant corruption, foreign policy, the rule of law, bad governance, and vice-versa; henceforth, there are internal and external factors that affect the defense budget of countries (Kreutz, 2010). Humphreys and Weinstein (2008) suggested that political elites, for their personal gains, manipulate the governance system and necessitate an environment that can provoke wars and social unrest. The study further suggests that political alienation as well as lack of access to education can foretell contribution to both rebellion and counter-rebellion activities.

Moreover, natural resources and ethnic fragmentation can also spur armed conflicts (Wegenast & Basedau, 2014). By using the logit models for panel data, Wegenast and Basedau (2014) conclude that ethnic fragmentation is an outcome of autocratic rule and lack of

[1]DFID is the United Kingdom's state-owned developmental organization, which under takes developmental initiatives across the globe.

democratization, where the rule of law and civil rights are less respected; hence, salience-based fractionalization is related to armed conflict. Some studies portray religion as a driver of armed conflicts. For instance, by employing logistic regressions on a dataset of 130 developing countries from 1990 to 2010, Basedau et al. (2016) show that religious groups can fuel armed conflicts.

2.2 Armed Conflicts and Socioeconomic Development

Armed conflict is a political phenomenon which can siphon off substantial resources of a country that can otherwise be used for economic uplift and welfare of its citizens (see Figure 2). Justino (2011) argues that after Iraq, it is the South Asian region that is most affected by violent armed conflicts, casualties, poverty, poor economic growth, and high unemployment. Moreover, the study highlights the devastation caused by the armed conflicts in Afghanistan and Pakistan in terms of large-scale destruction of infrastructure, social trauma, misery, deaths, and the subsequent adversities for the entire governance structure of the countries. In addition to this, as opined by Seitz et al. (2015), a dramatic increase in the defense spending of a conflict-torn country can further jeopardize its political stability via political turmoil and subsequent economic turmoil. The study recommends reductions in tariffs and defense spending and enhancement of free trade among rival nations. Moreover, armed conflicts promote health inequity in terms of limited access to basic and maternal health services and subsequent poor health outcomes (Chi, Bulage, Urdal, & Sundby, 2015).

As described earlier, armed conflict can adversely affect governance, economic growth, and human capital formation of a nation. With armed conflict, there is an overall decline in the economic welfare of the people of a region over the long run (please refer to Figure 1). Bad governance further reduces the overall welfare of the people through divergence of resources via waste, misuse, and corruption. Therefore, governance has bidirectional effects on a nation's capability to effectively and efficiently respond to various internal and external threats and ensure economic prosperity (Oh & Oetzel, 2011). To sum up, research frameworks employed in existing studies lack essential details that we augment in our research framework available in Figure 2.

Armed conflicts affect both governance and economic development. Owing to the widespread occurrence of acts of terrorism during armed conflict, huge economic and human losses are inflicted irrespective of caste, creed, nationality, and color. Not only this, but armed conflicts weaken institutions and their effectiveness. Although the notion of armed conflict and

governance is relatively new in the literature; still, the Department for International Development-DFID (2006) concludes that governance is essential for bringing an end to armed conflict and for accomplishing economic development. Governance refers to the authority of making and implementing decisions in accordance with the voices of all stakeholders; and formal structures, i.e., institutions, are essential for good governance, economic growth, and development of a nation.

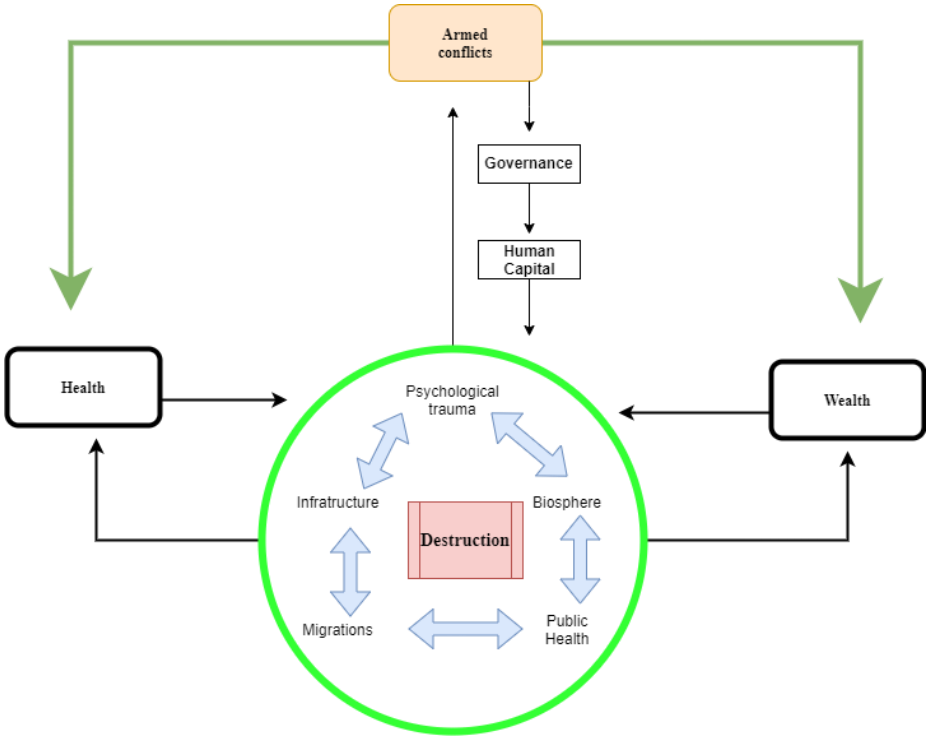

Figure 2: Direct and indirect effects of armed conflicts on the socioeconomic development

3. Methodology

This study employs panel data from South Asian countries covering a period from 2002 to 2018 (17 years). We use the dependent variable, armed conflict (AC), which quantifies the incidence and number of violent events in a year and was retrieved from Global Terrorism Database (GTD). Although Brooks et al. (2005) and Justino (2011) also attempt to quantify armed conflict, our approach is more comprehensive.

We use government effectiveness (GE), a proxy variable for governance, political stability and absence of violence/terrorism (PS), regulatory quality (RQ), voice and accountability (VA), and rule of law (RL) as explanatory variables in our study. These variables are constructed from 35 data

resources by 33 different organizations (the range of the variables is from -2.5 to 2.5). The primary source of these variables is the World Bank Governance Indicators. We also employ other explanatory variables like remittances (RE) (in million US dollars) and droughts/floods (DF), which are collected from the World Bank. Moreover, the population (POP) is measured in thousands and is collected from the United Nations Population Division for the period of 2002 to 2018. Detailed description of the variables used in this paper follow.

Armed Conflicts (AC)

We measure incidence and magnitude of violent act(s) during the study period through AC. The incidence is a dummy variable that refers to the occurrence of a violent event, while the magnitude refers to the number of violent acts during the study period. The armed conflict equals 1 for the occurrence of at least one violent incident per annum, otherwise it takes a value of 0.

We employ five dimensions of governance: government effectiveness (GE), political stability and absence of violence/Terrorism (PS), rule of law (RL), voice and accountability (VA), and regulatory quality (RQ). Our definitions of these dimensions are consistent with that of Kaufmann et al. (2010). In this subsection, we also explain our additional variables: remittances, population, and floods/drought.

Government Effectiveness (GE)

We use government effectiveness to assess quality of and equality in civil/public services provision. Moreover, GE gauges impartially the provision of civil/public services, and it assesses commitment of the incumbent government towards effective policy formulation and efficient implementation.

Political Stability and Absence of Violence/Terrorism (PS)

We gauge the possibility of terrorist incidents owing to political unrest and violence through this variable.

Rule of Law (RL)

We employ rule of law (RL) to assess law abidance and enforcement in true letter and spirit by stakeholders, i.e., society, law enforcement agencies, and the legal and justice system.

Voice and Accountability (VA)

We attempt to measure the independence of media and the ability of the general public to freely express themselves and associate for common cause(s) through the voice and accountability (VA) variable.

Regulatory Quality (RQ)

Through this variable, we measure the capacity of a state to promulgate and enforce prudent legislations that are capable of fostering enterprise, particularly private enterprise.

Remittances (RE)

Through this variable, we consider the foreign proceeds, in U.S. dollars, sent by expatriates from their wages and/or business income.

Population (POP)

We attempt to capture the population size of a country through this variable, estimated as the mid-year count.

Droughts/ Floods (DF)

Through this variable, we control for the adversities of natural climates, i.e., floods, droughts, and heat waves, that have occurred in the study area. These adversities include human casualties, loss of property, and loss of livelihood among the affected population dwelling in the study area.

3.1 Model

In this study, we estimate armed conflict incidence through the following model:

$$AC(\text{Yes} = 1/\ \text{No} = 0) = f(GS + PS + RL + VA + RQ + POP + RE + DR) \quad (1)$$

To estimate the severity of armed conflict, we use the following model:

$$AC(\text{No of violent events}) = f(GS + PS + RL + VA + RQ + POP + RE + DR) \quad (2)$$

where

AC represents armed conflict (incidence/severity),

GE represents government effectiveness,

PS represents political stability,

RL represents rule of law,

VA represents voice and accountability,

RQ represents regulatory quality,

POP represents population,

RE represents remittances,

DF represents droughts/floods,

Moreover, we specify the armed conflict model in a stochastic form per the following (please refer to Figure 3):

$$AC = b_0 + b_{1t}GS + b_{2t}PS + b_{3t}RL + b_{4t}VA + b_{5t}RQ + b_{6t}POP + b_{7t}RE + b_{8t}DR + m_t \quad (3)$$

where β_o is intercept, β_1 to β_8 are coefficients of the particular variables, and μ_t is the error term.

For data analysis, we use different panel techniques. First, we employ a panel unit root test for stationarity test of the data. Afterwards, we employ the Kao Residual panel co-integration technique. Moreover, we use a logit model for estimation of equation (1) and an ARDL model for that of equation (2). We apply robust standard errors to control for autocorrelation and heteroskedasticity.

For this study, we put forward the following hypotheses:

H_0: Weak governance positively induces armed conflicts in South Asia

H_a: Weak governance has no effect on armed conflicts in South Asia

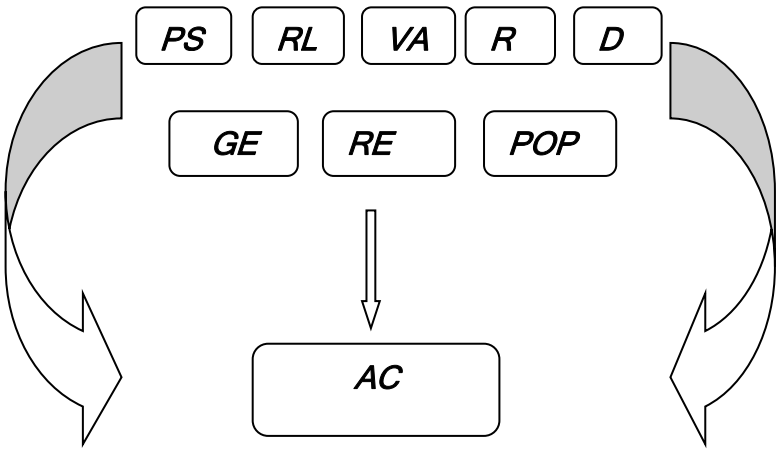

Figure 3: Model construction.

Source: Authors' calculation

3.2 Estimation Methodology

Panel Unit Root Test

Panel unit root analysis could be measured as an expansion of the univariate unit root analysis, and it allows for investigating mean-reversion (stationarity) in the group (panel) of series. In economics, every variable needs to be stationary. In other words, the variables should have constant mean, variance, and covariance. If it is not the case, then the regression is said to be spurious, and we cannot rely on the results obtained. We have used LLC, IPS, ADF Fisher and PP

Fisher panel unit root analysis to confirm data stationarity. The baseline framework is ADF regression for panel data.

$$\Delta Y_{it} = \gamma_i Y_{it-1} + \sum_{j=1}^{p} \alpha_j \Delta Y_{it-j} + \varepsilon_t$$

The Null hypothesis for testing non-stationarity is

$H_{o:} \gamma_i = 0$

where $\gamma_i = \rho_i - 1$.

The alternative hypothesis is not common for a panel unit root test that is based on the ADF regression:

$H_{1:} \gamma_i = \gamma < 0$ ($\rho_i = \rho < 0$) for all panels.

$H_{1:} \gamma_i < 0$ ($\rho_i < 0$) for some panels.

Panel Co-integration Test

We use the Kao Residual (Engle-Granger based) test, which uses a similar approach to that of the Pedroni analysis, except for providing cross-section's detailed intercepts and uniform coefficients on the first-stage regressors. The long run effects are estimated by capable method for the panel data.

Logit Model

We know that logistic regression is predictive in nature like probabilistic models. Therefore, a logistic, or logit, regression model is an appropriate analytical approach for binary (dichotomous) dependent variables.

Autoregressive Distributed Lag Model (ARDL)

The ARDL testing approach is introduced by (Pesaran, Shin, & Smith (2001) and it has a number of features which make researchers prefer this model. Through ARDL application, we intend to explore the long-run relationship between the independent variables and armed conflicts.

The ARDL general model for two variables can be expressed as:

$$D\,\mathrm{Yt} = \sum_{i=1}^{n} D\,\mathrm{Y}_{t-i} + \sum_{i=1}^{n} D\,\mathrm{X}_{t-j} + \mathrm{Y}_{t-1} + \mathrm{X}_{t-1} + \mathrm{u}_t \qquad (4)$$

In the above equation, the term $\sum_{i=1}^{n} D\,\mathrm{Y}_{t-i} + \sum_{i=1}^{n} D\,\mathrm{X}_{t-j}$ represents the short-run relationship between variables while the long-run relationship is represented by ($Y_{t-1} + X_{t-1}$). Being economists, we are mainly interested in the long-run relationship (Pesaran et al., 2001).

4. Results and Discussions

We append the summary statistics of our variables in Table 2. The armed conflicts variable ranges from 0 to 2214 (with standard deviation of 480.745). Armed conflicts (AC) are quantified by using the incident (Yes=1/No=0) and number of acts of violence in a year. The government effectiveness (GE) variable ranges from -1.568 to 0.785 (with standard deviation of 0.527). The political stability and absence of violence/terrorism (PS) variable ranges from -2.810 to 1.283 (with standard deviation of 1.197).

Table 2: Summary statistics of the variables

Variable Description	Variable	Obs	Mean	Std. Dev.	Min	Max
Government Effectiveness	Ge	136	-0.49	0.53	-1.57	0.78
Political Stability and Absence of violence / Terrorism	Ps	136	-0.91	1.20	-2.81	1.28
Rule of Law	Rl	136	-0.65	0.62	-1.90	0.63
Voice and Accountability	Va	136	-0.57	0.42	-1.43	0.39
Regulatory Quality	Rq	136	-0.54	0.58	-1.80	0.80
Population	Pop	136	202	392	290	1,339,180
Terrorist acts	incident	136	0.84	Dummy	0	1
No of Terrorist Acts	severity	136	282.07	480.74	0	2214
drought /floods	Df	136	0.11	1.17	0.01	4.60
Remittances	Re	136	9,422.79	16,222.35	1.19	66,831.61

Rule of law (RL) ranges from -1.897 to 0.630 with standard deviation of 0.625. Voice and accountability (VA) ranges from -1.433 to 0.390, with standard deviation of 0.420. Regulatory quality (RQ) ranges from -1.804 to 0.804 with standard deviation of 0.581. Population (POP) ranges from 290 to 1339180 with standard deviation of 392. Drought/floods (DF) ranges from 0.005 to 4.600 with standard deviation of 1.168. And remittances (RE) ranges from 1.190 to 66831.610 with standard deviation of 16222.350.[2]

The results from estimating equation (1) and equation (2) are presented in Tables 3, 4, 5, and 6. The logit estimates for equation (1) appended in Table 3 show that government effectiveness (GE), political stability and absence of violence (PS), and regulatory quality (RQ) have negative

[2]Afghanistan=1, Bangladesh=2, Bhutan=3, India=4, Maldives=5, Nepal=6, Pakistan=7, Sri Lanka=8

(which is significant at 10% and 5% level of significance in case of PS and RQ, respectively) relationship with armed conflict, while the other variables like rule of law (RL) and droughts/floods (DF) have negative association with armed conflict.

Table 3: Logit model results

Variables	Coefficient	Std. Error	z-statistics	Prob.
Ge	-1.21	2.588	-0.466	0.06*
Ps	-2.19	2.391	-0.917	0.03**
Rl	-1.95	3.851	-0.507	0.61
Va	1.02	1.788	0.569	0.56
Rq	-2.65	2.761	-0.958	0.03**
Pop	6.78	10.599	0.639	0.05**
Re	0.025	0.041	0.606	0.05**
Df	-0.121	0.623	-0.194	0.84

Note. ***, **, * indicate 1 %, 5 %, and 10 %.

The additional explanatory variables like population (POP) and remittances (RE) have positive and significant (at 5% level) effects on AC, while voice and accountability (VA) also has positive relationship with armed conflict.

We present the panel unit root analysis in Table 4. The results are with the individual intercept. The panel unit root results show that the dependent variable, armed conflict (AC), and the independent variable, regulatory quality (RQ), are stationary at first difference; but the two tests also reveal that both variables are also stationary at level. This can be seen from the probability value, which is less than 0.05 (5%) in LLC and PP Fisher tests, while the other explanatory variables are stationary at level.

Table 4: Panel unit root results

Variable	LLC Stat	LLC Prob.	IPS Stat	IPS Prob.	Conclusions
Ac	-1.37	0.04**	-1.23	0.10	
D(ac)	-2.40	0.00***	-3.87	0.00***	I(1)
Ge	-3.68	0.00***	-3.65	0.00***	I(0)
Ps	-3.05	0.00***	-2.62	0.00***	I(0)
Rl	-1.79	0.03**	-1.31	0.09*	I(0)

Va	-2.55	0.00***	-1.74	0.04**	I(0)
Rq	-2.75	0.00***	-1.24	0.10	
D(rq)	-1.40	0.08*	-3.44	0.00***	I(1)
Pop	-2.63	0.00***	0.43	0.66	I(0)
Re	-3.00	0.00***	-2.05	0.02**	I(0)
Df	-4.03	0.00***	-2.85	0.00***	I(0)
Variable	**ADF Fisher Stat**	**ADF Fisher Prob.**	**PP Fisher Stat**	**PP Fisher Prob.**	**Conclusions**
Ac	17.95	0.20	26.19	0.02**	
D(ac)	45.05	0.00***	102.48	0.00***	I(1)
Ge	44.06	0.00***	46.81	0.00***	I(0)
Ps	31.81	0.01***	30.29	0.01***	I(0)
Rl	23.82	0.09*	28.43	0.02**	I(0)
Va	23.86	0.09*	22.55	0.12	I(0)
Rq	23.39	0.10	30.87	0.01***	
D(rq)	40.36	0.00***	106.06	0.00***	I(1)
Pop	27.66	0.03**	4.06	0.09*	I(0)
Re	27.21	0.03**	30.41	0.01***	I(0)
Df	35.12	0.00***	36.08	0.00***	I(0)

Note. ***, **, * indicate 1 %, 5 %, and 10 %.

In Table 5, the results suggest that there is co-integration at the 1 percent level of significance among all variables in South Asian countries. So, the null hypothesis for no co-integration is rejected, and we accept the alternative hypothesis.

Table 5: Kao residual (Engle- Granger based) co-integration results

Estimates	t- Statistic	Prob.
ADF	-3.17	< 0.01
Residual Variance	33760.82	
HAC Variance	41634.64	

Note. The Null hypothesis of Kao Residual panel Co-integration is no Co-integration.

In Table 6, the results show that in the short run, government effectiveness (GE), political stability (PS), regulatory quality (RQ), and droughts/floods (DF) have negative association with

armed conflict (AC). Moreover, rule of law (RL) has negative and significant correlation (at 1 percent level) with AC in the short run. On the other hand, voice and accountability (VA) and population (POP) have a positive relationship with AC, while remittances (RE) have positive and significant (at 1 percent level) association with armed conflict in the short run.

The results in Table 6 reveal that government effectiveness (GE), political stability (PS), and rule of law (RL) have negative and significant (at 1 percent level of significance) relationships with armed conflict, while regulatory quality (RQ) and natural calamities (DF) have negative associations with AC in the long run. Moreover, voice and accountability (VA) has a positive but insignificant association with armed conflict (AC). One of the obvious reasons for VA and RQ to be insignificant is the effects of POP. Moreover, in the presence of natural calamities (DF), VA is suppressed. Furthermore, remittances (RE) and population (POP) have positive and significant (at 1 percent level of significance) relationships with AC in long run only.

The above-mentioned results confirm that governance is negatively related to armed conflict and is highly significant. This means that armed conflict has adverse impact on governance, which in turn contributes to economic growth declines and the welfare level of the general public deteriorating because of lower rates of investment and human capital formation.

The aforementioned results suggest that government effectiveness, political stability, rule of law, and regulatory quality will be lower, and the risk of armed conflict will be higher. Moreover, there is a positive and insignificant relationship between voice and accountability and armed conflict. This implies that with a rise in acts of violence, the voice of masses rises.

Our results also reveal that there is a positive and highly significant association among population, external finances, and armed conflict. As suggested by the existing literature, population is a risk factor for armed conflicts. Thus, countries with low population growth rate have comparatively lower income inequality, higher standards of living, more educated youth, and hence lower likelihood of armed conflict. This study also predicts that the higher the population growth, the higher the risk of armed conflict, which is consistent with the existing literature. To sum up, a rapid population growth rate and remittances fuel conflict by providing essential human and financial resources to the armed conflict, while externalities slow down conflicts by comparatively higher susceptibility of the armed groups to these shocks and comparatively slow recovery.

Table 6: ARDL model results

Long Run Equation				
Variables	Coefficient	Std. Error	t-Statistic	Prob.
Ge	-82.56	13.43	-6.15	0.00***
Ps	-99.48	12.65	-7.87	0.00***
Rl	-3.07	1.04	-2.96	0.00***
Va	7.68	6.35	1.21	0.23
Rq	-0.36	0.47	-0.77	0.44
Pop	3.62	0.60	6.07	0.00***
Re	0.01	0.00	6.66	0.00***
Df	-4.27	2.61	-1.64	0.10
Short Run Equation				
ECT_{t-1}	-0. 32	0. 14	-2. 14	0. 01
D(ge)	-31. 23	392. 64	-0. 08	0. 93
D(ps)	-223. 08	176. 19	-1. 27	0. 20
D(rl)	-3. 07	1. 04	-2. 96	0. 00***
D(va)	104. 40	208. 71	0. 50	0. 61
D(rq)	-0. 36	0. 47	-0. 77	0. 44
D(pop)	25. 05	15. 21	1. 65	0. 10
D(re)	0. 012	0. 00	6. 66	0. 00***
D(df)	-5. 580	13. 84	-0. 40	0. 68
Log Likelihood	-597. 34			
AIC	10. 08			
SC	11. 96			
HQ	10. 84			
Specification ARDL	(1,1,1,1,1,1,1,1,1)			

An interesting finding is the positive and significant contribution of remittances on armed conflicts. This may be a reflection on the role of remittances in fueling conflict, as they exhibit characteristics more or less similar to the conflict economy.

The results show that natural calamities may reduce the likelihood and/or intensity of armed conflicts because the abundance of resources, particularly natural resources, acts as a life line for insurgent groups, as financing from the exploitation of natural resources is an easy and safe source of finances.

Robustness Checks

To check the robustness of our estimated results, we change the proxy of governance. For this purpose, we employ International Country Risk Group (ICRG) data. The governance data consist of bureaucratic quality (BQ), control of corruption (CC), democratic accountability (DA), the rule of law (RL), and government stability (GS). The data are further divided on the basis of ten scale, where 0 denotes poor governance and 10 represents good governance. For interpretation purposes, we transform the data into natural logarithm form and employ the ARDL approach. We present the short- and long-run results in Tables 7 and 8.

Table 7: Long-run results (max lag =1)

Variable	Coefficient	Standard error	t-statistic	p-value
bureaucratic quality	-62.65	12.26	-5.11	0.00***
Control of corruption	-1.20	0.68	-1.77	0.09*
democratic accountability	-0.68	0.42	-1.61	0.12
the rule o law	-36.50	5.97	-6.11	0.00***
government stability	-0.79	0.46	1.74	0.09*
Population	36.51	9.38	3.89	0.00***
Remittances	16.31	16.76	0.97	0.34
Floods	10.31	8.61	1.19	0.24

Note. * and *** represent 10 % and 1 % level of significance. Constant has been excluded. The lag selection is based on Akaike Information Criteria (AIC).

The results obtained after changing the proxy are within the range of our earlier estimates. Hence, our results are robust. The signs of the coefficients are consistent with economic theory and our expectations. The results reveal that governance can negatively influence armed conflicts in the region. However, democratic accountability is slightly insignificant. Moreover, the coefficients on other governance indicators are statistically significant (with significance levels of 1% and 10%, respectively). A one percent decrease in BQ, CC, RL, and GS can increase the probability of armed conflicts by 62.65%, 1.20%, 36.50%, and 0.79%, respectively, which implies that governance in our sample can negatively affect armed conflicts in South Asia. Except for population, the other control variables, RE and DF, are insignificant, although their signs are in accord with the economic theory.

In Table 8, we present the short-run analysis. Here, we see that some of the variables are significant at 1%, 5%, and 10%. It is noteworthy that the ECT (error correction term) is highly significant and negative, which shows the speed of the adjustment to restore equilibrium in the long-run.

Table 8: Short-run results (max lag =1)

Variable	Coefficient	Standard error	t-statistic	p-value
bureaucratic quality	-1.20	0.39	-3.11	0.00***
Control of corruption	2.49	3.23	0.77	0.44
democratic accountability	-51.21	83.95	-0.61	0.54
the rule o law	-16.08	1.74	-9.22	0.00***
government stability	0.08	0.02	3.24	0.00***
Population	0.98	0.52	1.89	0.07*
Remittances	7.78	6.19	1.26	0.22
Floods	10.31	4.57	2.26	0.03**
Speed of Adjustment or ECT	-0.57	0.08	-7.11	0.00***

Note. *, **, and *** represent 10 %, 5 %, and 1 % level of significance.

5. Conclusion and Policy Recommendations

This study aims to investigate the role of governance in armed conflicts by employing the logit and ARDL approaches. We conclude that government effectiveness (GE), political stability (PS), and regulatory quality (RQ) have significant and negative association with armed conflict (AC). Moreover, rule of law (RL) and natural calamities (DF) also have a negative relationship with armed conflict, while the population (POP) and remittances (RE) have significant and positive correlation with AC. Moreover, voice and accountability (VA) also have positive association with AC based on logit model estimations.

Based on the ARDL results, we conclude that government effectiveness, a proxy variable for governance, political stability, and rule of law have negative and highly significant association with armed conflict. This implies that with an increase in terrorist activities, there will be a general decline in governance level, political stability, rule of law, and regulatory quality. Thus, good governance can reduce the risk of armed conflict in a region. Voice and accountability have a positive relationship with the armed conflict. This means that the terrorist activities increase the

voice and accountability, which can be a reaction to increasing oppression on the general public in a conflict zone. As discussed earlier, population and external finances (remittances) also have positive and highly significant association with armed conflict, both of which are essential for prolonging any conflict. The most striking part of the analysis is a very strong and significant association of remittances with armed conflict, which could indicate a possible role for remittances in the conflict economy. Furthermore, natural calamities (Droughts/Floods) have a negative but insignificant link with armed conflict.

Based on our findings, we recommend that it is pertinent for governments to strengthen their institutions in a way that can judiciously deliver services across the board. Concerted efforts from all stakeholders are required to beef up the security system in the country with enhanced intelligence and safety measures. Moreover, to curb the menace of terrorism, investigation processes must be capable of identifying financiers and/or sympathizers of terrorist groups. Finally, government should formulate policies and take proactive steps to reduce and resolve political and/or social conflicts within their countries, as ongoing conflicts provide a breeding ground for terrorists to increase their influence and accomplish their ulterior motives by taking full advantage of the political polarization and social fragmentation in fragile societies.

This study has some limitations. Our data cover the South Asian region only; therefore, caution is to be taken in generalizing the results beyond this study area.

References

Akhmat, G., Zaman, K., Shukui, T., & Sajjad, F. (2014). Exploring the root causes of terrorism in South Asia: Everybody should be concerned. *Quality and Quantity*, *48*(6), 3065–3079.

Asongu, S. A., & Nwachukwu, J. C. (2017). The impact of terrorism on governance in African countries. *World Development*, *99*, 253–270.

Basedau, M., Pfeiffer, B., & Vüllers, J. (2016). Bad religion? religion, collective action, and the onset of armed conflict in developing countries. *Journal of Conflict Resolution*, *60*(2), 226–255.

Brooks, N., Adger, W. N., & Kelly, P. M. (2005). The determinants of vulnerability and adaptive capacity at the national level and the implications for adaptation. *Global Environmental Change*, *15*(2), 151–163.

Chi, P. C., Bulage, P., Urdal, H., & Sundby, J. (2015). A qualitative study exploring the

determinants of maternal health service uptake in post-conflict Burundi and Northern Uganda. *BMC Pregnancy and Childbirth*, *15*(1), 1–14.

Coccia, M. (2018). A theory of general causes of terrorism - high population growth, income inequality and relative deprivation. *Archives of Psychology*, *2*(4), 22–47.

DFID. (2006). *Governance, development and democratic politics: DFID's work in building more effective states*. London.

Enders, W., & Sandler, T. (2000). Is transnational terrorism becoming more threatening? A time-series investigation. *Journal of Conflict Resolution*, *44*(3), 307–332.

Humphreys, M., & Weinstein, J. M. (2008). Who fights? the determinants of participation in civil war. *American Journal of Political Science*, *52*(2), 436–455.

Institute for Economics and Peace. (2017). Global Terrorism Index: Measuring and understanding the impact of terrorism. *Institute for Economics and Peace*, 1–107. Retrieved from www.economicsandpeace.org

Iyer, L. (2011). The Bloody Millennium: Internal Conflict in South Asia. *Harvard Business School BGIE Working Paper No.09-086*.

Justino, P. (2011). The impact of armed civil conflict on household welfare and policy. *IDS Working Papers*, *2011*(384), 1–38.

Khalid, U., Okafor, L. E., & Aziz, N. (2020). Armed conflict, military expenditure and international tourism. *Tourism Economics*, *26*(4), 555–577.

Khan, H., Khan, U., Jiang, L. J., & Khan, M. A. (2020). Impact of infrastructure on economic growth in South Asia: Evidence from pooled mean group estimation. *The Electricity Journal*, *33*(5), 106735. 5

Khan, S. U., Khalid, A., & Elahi, N. (2020). Old wine in a new bottle: Governance, fragility and armed conflict trio in Swat Valley, Pakistan. *Cogent Social Sciences*, *6*(1), 1–18.

King, E., & Mutter, J. C. (2014). Violent conflicts and natural disasters: The growing case for cross-disciplinary dialogue. *Third World Quarterly*, *35*(7), 1239–1255.

King, E., & Mutter, J. C. (2015). Natural disasters and violent conflicts. In J. F. Shroder, A. E. Collins, S. Jones, B. Manyena, & J. Jayawickrama (Eds.), *Hazards, Risks and, Disasters in Society* (pp. 181–198). Amsterdam: Elsevier.

Kreutz, J. (2010). How and when armed conflicts end: Introducing the UCDP conflict termination dataset. *Journal of Peace Research*, *47*(2), 243–250.

Makinda, S. M. (2003). Global governance and terrorism. *Global Change, Peace & Security*, *15*(1), 43–58.

Morse, R. S. (2011). The practice of collaborative governance. *Public Administration Review*, *71*(6), 953–957.

Morse, S. (2019). Corruption Perception Index. In S. Morse (Ed.), *The rise and rise of indicators: Their history and geography* (pp. 155–170). New York: Routledge.

Oh, C. H., & Oetzel, J. (2011). Multinationals' response to major disasters: How does subsidiary investment vary in response to the type of disaster and the quality of country governance? *Strategic Management Journal*, *32*(6), 658–681.

Pesaran, M. H., Shin, Y., & Smith, R. J. (2001). Bounds testing approaches to the analysis of level relationships. *Journal of Applied Econometrics*, *16*(3), 289–326.

Seitz, M., Tarasov, A., & Zakharenko, R. (2015). Trade costs, conflicts, and defense spending. *Journal of International Economics*, *95*(2), 305–318.

Wegenast, T. C., & Basedau, M. (2014). Ethnic fractionalization, natural resources and armed conflict. *Conflict Management and Peace Science*, *31*(4), 432–457.

Yiew, T. H., Habibullah, M. S., Law, S. H., & Azman-Saini, W. N. W. (2016). Does bad governance cause armed conflict? *International Journal of Applied Business and Economic Research*, *14*(6), 3741–3755.

Appendix

Table A1: Cross country descriptive statistics

Variables	Afghanistan	Bangladesh	Bhutan	India	Maldives	Nepal	Pakistan	Sri Lanka
AC								
Mean	784.19	65.06	1.11	511.81	1.66	69.69	777.12	47.18
Max	1,928.00	469.00	3.00	1,020.00	9.00	247.00	2,214.00	218.00
Min	38.00	4.000	1.00	108.00	1.00	7.00	29.00	1.00
Std. Dev	669.02	112.16	0.48	296.39	1.93	54.24	697.22	62.00
GE								
Mean	-1.35	-0.76	0.42	-0.39	-0.14	-0.83	-0.62	-0.16
Max	-1.08	-0.69	0.78	0.09	0.40	-0.46	-0.37	0.05
Min	-1.57	-0.91	0.02	-0.54	-0.45	-1.05	-0.82	-0.42
Std. Dev	0.14	0.06	0.18	0.14	0.25	0.15	0.16	0.11
PS								

Mean	-2.45	-1.37	0.92	-0.10	0.31	-1.49	-2.29	-0.83
Max	-2.04	-0.89	1.28	0.12	1.07	-0.66	-1.55	0.09
Min	-2.78	-1.86	0.57	-0.83	-0.36	-2.15	-2.81	-1.80
Std. Dev	0.23	0.23	0.21	0.21	0.46	0.48	0.42	0.56
RL								
Mean	-1.69	-0.83	0.31	-1.11	-0.32	-0.72	-0.83	0.02
Max	-1.45	-0.59	0.63	-0.03	0.04	-0.47	-0.72	0.33
Min	-1.90	-1.05	0.06	-1.51	-0.75	-0.95	-0.97	-0.28
Std. Dev	0.14	0.12	0.14	0.32	0.24	0.12	0.07	0.16
VA								
Mean	-1.20	-0.47	-0.55	0.04	-0.57	-0.61	-0.87	-0.35
Max	-0.99	-0.27	0.01	0.39	-0.05	-0.23	-0.69	-0.06
Min	-1.43	-0.67	-1.29	-0.09	-1.19	-1.15	-1.17	-0.67
Std. Dev	0.13	0.11	0.43	0.12	0.36	0.28	0.15	0.20
RQ								
Mean	-1.45	-0.93	-0.73	0.39	-0.09	-0.66	-0.65	-0.15
Max	-0.99	-0.80	0.03	0.46	0.80	-0.38	-0.48	0.19
Min	-1.80	-1.13	-1.17	-0.25	-0.46	-0.85	-0.90	-0.42
Std. Dev	0.23	0.09	0.34	0.17	0.43	0.13	0.10	0.15
POP								
Mean	28,728.75	151,218.8	732.94	1,219,194.	363.75	26,946.47	169685.9	20,152.94
Max	35530.00	164,670.0	1,000.00	1,339,180.	440.00	29,300.00	197,020.0	21,440.00
Min	21,980.00	136,600.0	610.00	1089810.	290.00	24570.00	144650.0	19060.00
Std. Dev	4,062.59	8,414.01	92.72	76,721.27	46.22	1,415.76	16,161.39	689.13
RE								
Mean	93.84	9606.14	9.94	46,265.84	8.63	4,646.34	10,551.56	4,200.04
Max	312.70	15,271.42	41.05	66,831.61	15.60	22,581.29	19,734.00	7,241.53
Min	14.27	2,847.66	1.19	15,628.84	2.20	655.03	3,554.00	1,287.07
Std. Dev	95.94	4,423.19	11.62	18,899.68	2.69	5,105.87	5,912.50	2,240.01
DF								
Mean	0.78	1.56	2.03	1.25	1.19	0.87	1.11	0.80
Max	2.50	4.60	4.32	4.40	3.97	4.32	3.76	2.50
Min	0.07	0.01	0.03	0.02	0.46	0.01	0.07	0.08
Std. Dev	0.56	1.30	1.29	1.68	1.07	0.99	1.05	0.65

Authors' calculation based on WB and GTD data

Table A2: Average marginal effects

variable	dy/dx	Standard Error	z	P>z
Ge	-0.53	0.23	-2.30	0.02**
Ps	-0.60	0.06	-10.95	0.00***
Rl	-0.03	0.02	-1.49	0.14
Va	0.03	0.02	1.54	0.12
Rq	-0.11	0.06	-1.60	0.10*
Pop	0.93	0.59	1.56	0.12
Re	0.01	0.02	0.62	0.53
Df	0.03	0.04	0.70	0.49

Note. *, **, and *** represent significance at 10 %, 5 %, and 1% respectively.