

HAMPERING EFFECT OF TERRORISM ON INVESTMENT: THE SOUTH ASIAN PERSPECTIVE

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ABSTRACT: During recent years, terrorism has become a significant threat to the growth of investment in developing economies. In order to determine its role in domestic or foreign direct investment, this study has conducted an empirical investigation in South Asian countries. The dataset consists of terrorism, domestic and foreign investment and other relevant variables taken over the time span (1991-2013). This study has employed Pooled Mean Group estimation technique to quantify the relationship between terrorism and investment. Results show that there exists a significant negative relationship between terrorism and domestic as well as foreign investment in the long run. There is also evidence of negative relationship between terrorism and total investment in the long run. Policy recommendations have been given on the basis of results.

Key Words: Terrorism, Foreign Direct, Investment, PMG, South Asia.

1. INTRODUCTION

Terrorism, an evil having a grave concern with waning growth, has shaken the conscience of human beings all over the world. Though there are many definitions of terrorism given by eminent scholars and international organizations, its roots lie back in the era of French Revolution. The term was originally meant as state terrorism which was exercised by the French Government during 1793-1794. This atrocious episode was termed as 'Reign of Terror' by the historians. After that, terrorism was referred as any violent activity made to attain some political, religious or ethnic objectives. It includes bomb blasts, target killings, human massacring and suicide attacks etc. Broadly speaking, the basic aim of these activities is to create an environment of fear and insecurity among people, which leads to the deterioration of political, economic and social foundations of a country. The aftermath of violent activities was found to be a severe halt to economic growth and investment in South Asian countries. These events passed on negative effects on employment, commodity market, foreign direct investment and domestic investment [1;2]. When a terrorist activity takes place, the wave of insecurity imparts fear in investor's mind and the return on investment is expected to be tumbled down, resulting in a declined level of foreign direct investment. This decrease in FDI plays a negative role in growth of Gross Domestic Product [3]. Some studies found that terrorism culminates in creating massive destruction, collateral damage, high human and economic costs along with increased violations of human rights [4,5,6].

The role of domestic investment cannot be overlooked in the economic growth of developing countries. [2] concluded that terrorist attacks diluted the FDI volume by 11.9 % in Greece and 13.5% in Spain during 1975 to 1991. Thus it resulted in a decline of 34.8% in gross fixed capital formation in Greece while 7.6% in Spain during 1975-1991. In such situation, it becomes hard enough for an investor to incur investments in the terror stricken environment. This loss of confidence imparts a huge cost on the affected country and drags it to the precipice of debt crisis. Moreover, public investment is also severely damaged by the perils of terror oriented activities as the government projects like construction of roads, canals, bridges and highway are also put to end due to these destructive events [7]. Similarly, the finance proportion of health and education expenditures also get worsened as government has to allocate a huge percentage of budget to

defense sector [8]. South Asia has been previously a prominent region in the world due to abundance of its natural resources, mixed civilization, heterogeneity of culture and developing political environment. The wave of terrorism has overwhelmed the whole region in its approach. Starting from Afghanistan, Taliban have detonated a huge number of bombs and carried out suicide attacks in one territory or the other. There are almost 30,000 Taliban in Afghanistan. Other notorious organizations include Al-Qaeda, Hizb-i-Gullbudin, Islamic Jihad union and many others that have not been notified yet in public. They have not only created havoc in their region but also in the outskirts of Afghanistan. The economy of Afghanistan has suffered a lot due to collateral damage and loss of domestic as well as foreign investment.

According to South Asian Terror Portal (SATP), Pakistan includes almost 48 national and transnational militant organizations. In common, Fighters of Tehrik e Taliban Pakistan, Lashkar e Taiba, Jaish-e-Mohammed and Jalaluddin Haqqani network have raised great violence in society. India, Nepal and Bangladesh constitute more than 200 militant organizations as per record of SATP. Highly dangerous organizations among these include Jammu & Kashmir Liberation Front (JKLF), Tamil Nadu, Communist party of Nepal, Mutahida Jihad Council (MJC), Liberation Tiger of Tamil Eelam, Tehrik-ul-Mujahideen (TuM) etc. All these organizations have more or less the same motive of domination and implementation of their own system of governance. In order to achieve such ulterior motives, they instigate terrorist attacks, thus resulting in colossal losses. Such situations result in loss of domestic and foreign investment.

1.1 Objectives

The object of this study is mentioned below:

- To investigate the nature of relationship among Terrorism, Domestic Investment, Foreign Direct investment and total investment.

2. LITERATURE REVIEW

Terrorism acquired significant attention since terrorist attacks started to hamper the economic growth of terror-stricken countries. Various studies have been conducted to explore the impacts of terrorism on economic growth and most of them found evidence of negative relationship between terrorism and economic growth. A brief literature review of previous studies on the topic under consideration has been discussed.

[9] analyzed the relationship among terrorism, unemployment rate and inequality by using panel data. The study results revealed that unemployment rate and inequality are the major determinants of terrorism. In addition, it concluded that political freedom that includes political changes from authoritarian control to democratic setup give rise to terrorism. Apart from these results, the research depicted that societal fragmentation on the basis of religion contribute towards higher terror risks. [1] studied the relationship between terrorism and mobility of capital in the world economy. The study explored that as the intensity of terrorism increases, the expected rate of return on investment decreases. Hence such situation involves mobility of capital across countries furthering a decrease in the foreign investment. [10] studied the impacts of domestic and transnational terrorism on foreign direct investment. They found that foreign aid, after the incidence of terrorist activities, helps in healing the effects of terrorism. The results revealed that the foreign aid receipts in terrorism-stricken countries supersede the losses incurred by attacks.

[11] analysed the causality between terrorism and foreign direct investment. They found that, when terrorist activities escalate in a country, the resultant situation creates a bad image of affected country among other nations and investors lose their confidence in that country. They observed that Pakistan is among those countries which face problems in attracting foreign investment. [12] examined correlation between terrorism and foreign investment in Pakistan with the help of time series data. They found the existence of a negative relationship between the both variables. Using a data of twelve years, they concluded that as terrorist activities increase in Pakistan, foreign direct investment starts decreasing.

[13] conducted a study using monthly data of terrorist attacks, fatalities, import and export flows from 1970-2008 for OECD states and its partner countries. They used gravity model to check effect of terrorism on general equilibrium. The results indicated that terrorist attacks have negligible effect on trade flows, income, and economic growth of a country. [14] took data of 23 years (1981-2012) and applied Johansen cointegration technique to estimate the relationship between terrorism and economic development in Pakistan. They found a significant negative relationship between terrorism and economic development of Pakistan and argued that terrorism hinders the process of economic growth via various channels such as exports, investment and capital.

[15] analyzed the dynamics of terrorism in 114 developing countries. He used the data of terrorism, foreign direct investment and counter-terrorism aid to determine whether aid lessens the negative effects of terrorism on FDI. The results showed that terrorism had a negative impact on FDI. Moreover, he concluded that counterterrorism aid given to panic-stricken countries helps them to recover from losses. The countries that receive counterterrorism aid in large amount were considered safe for investment.

To end with, there is a dire need to empirically examine the effects of terrorism on investments. In order to capture this relationship in South Asian region, this study intends to carry out an empirical estimation. Previous literature has not discussed in detail the nature and impact of terrorism on domestic investment in South Asian countries. Moreover, there are not enough studies on the dynamics of domestic and

total investment due to terrorist activities. This study differentiates itself from the previous ones by empirically investigating and quantifying the relationship between terrorism and domestic investment. After empirical analysis, it gives suggestions to policy makers to encourage investments.

3. DATA AND METHODOLOGICAL ISSUES

3.1 Data

The data set which has been used to estimate the models consists of eight cross sectional units i.e. Afghanistan, Bangladesh, Bhutan, Maldives, Nepal, Pakistan and Sri Lanka for the time period 1990-2013. To accommodate the research purpose, following variables have been taken for analysis. These variables include:

1. Number of Terrorist Attacks (N) taken from the Global Terrorism Database (GTD).
2. Foreign Direct Investment in Percentage (FDIP) taken from World Development Indicators (WDI).
3. Domestic Investment (KP) taken from WDI.
4. Information Communication and Technology (T) taken from WDI.
5. Electric Power Consumption (E) taken from Energy Information Administration (EIA).

3.2 Econometric Models

This study estimates three models in order to determine the relationship between investment and terrorism. Investment has been divided into two types: domestic and foreign. Secondly, effects of terrorism have been analyzed on domestic and foreign investment individually. After that, the collective impact of terrorism is studied. The following models are estimated in this study.

$$KP_{it} = \alpha_0 + \beta_1 N_{it} + \beta_2 E_{it} + \beta_3 LT_{it} + \varepsilon_{it} \dots\dots\dots(1)$$

$$FDIP_{it} = \alpha_0 + \beta_1 N_{it} + \beta_2 E_{it} + \beta_3 LT_{it} + \varepsilon_{it} \dots\dots\dots(2)$$

$$TI_{it} = \alpha_0 + \beta_1 N_{it} + \beta_2 E_{it} + \beta_3 LT_{it} + \varepsilon_{it} \dots\dots\dots(3)$$

where, TI = FDIP + KP

TI = total investment

KP = Gross capital formation (percentage of GDP)

FDIP = Foreign direct investment (percentage of GDP)

N = No. of terrorist attacks

E = Electric power consumption

LT = Natural log of telephone lines

ε_{it} is the disturbance term from the panel regression for 't' time period and ith cross sections. The model parameter α_i captures country specific or fixed-effects and the coefficient of β_i shows the slope across individual countries.

Model 1 analyses the impact of terrorism taken as number of terrorist attacks 'N' on domestic investment which is shown as gross capital formation 'KP'. Model 2 estimates the relationship between no. of terrorist attacks 'N' on foreign direct investment 'FDIP'. Model 3 estimates the effect of terrorism on a combined variable total investment 'TI' which has been computed by adding the domestic investment 'KP' and foreign direct investment 'FDIP'. This variable has been taken to analyze the impact of terrorism on collective investment as it captures effect on both domestic and foreign investment. All the three models have been estimated individually to check the existence of relationship among the desired variables.

Sample size and order of integration guide about appropriate methodology.

3.2.1 Unit Root Tests

In order to check the order of integration, this study has used

panel unit root tests, given by Levin Lin Chu (LLC) and Maddala & Wu (MW).

	ΔTI	$\Delta FDIP$	ΔKP	ΔN	ΔE	ΔLT
LLC	-9.81 ^a	-11.29 ^a	-10.98 ^a	-9.08 ^a	-4.53 ^a	-4.91 ^a
MWADF	126.4 ^a	156.96 ^a	138.19 ^a	107.8 ^a	41.96 ^a	39.79 ^a
MWPP	123.0 ^a	174.85 ^a	132.23 ^a	118.2 ^a	26.92 ^b	55.67 ^a
Remarks	I(1)	I(1)	I(1)	I(1)	I(1)	I(0)

Source: Authors' estimates.
^a and ^b show levels of significance at 1% and 5%.

Table 1 represents the order of integration of different variables. It can be interpreted that all the dependent variables i.e. FDIP, KP and TI are stationary at first difference while the only independent variable LT is stationary at level. Number of attacks 'N' has also order of integration I(1).

3.2.2 Cointegration Results

As the order of integration is mixed, Mean Group (MG) estimation [17], Dynamic Fixed Effect (DFE) estimator and Pooled Mean Group (PMG) estimation techniques ([18] and [19]) have been used to investigate long run relationship among variables. Application of these panel cointegration techniques can be seen in [20,21,22,23,24].

Model 1:

Model 1 estimates the relationship between domestic investment and terrorism.

	MG		DFE		PMG	
	Slope	p-value	Slope	p-value	Slope	p-value
N	-0.063	0.367	-0.001	0.594	-0.012	0.027
E	7.761	0.238	0.0355	0.000	0.039	0.001
LT	3.522	0.443	2.5835	0.007	0.740	0.158
ECT/Average Convergence Parameters						
ϕ_i	-0.342	0.000	-0.294	0.000	-0.250	0.000
Short Run Parameters						
ΔN	-0.017	0.365	-0.000	0.741	-0.066	0.336
ΔE	-5.098	0.357	0.003	0.382	-1.488	0.556
ΔLT	2.214	0.593	0.086	0.888	-0.643	0.726
Const.	1.516	0.856	-2.125	0.566	4.381	0.001
Hausman Test						
MG & DFE			MG & PMG			
$H_0 =$ DFE is an efficient and consistent estimator while MG is not efficient.			$H_0 =$ PMG is an efficient and consistent estimator while MG is not efficient.			
p-value = 0.053 > 0.05			p-value = 0.503 > 0.05			
Do not reject H_0 , DFE estimator is consistent and efficient.			Do not reject H_0 , PMG estimator is consistent and efficient.			

Source: Authors' estimates

Table 2 depicts the results of MG, DFE and PMG techniques. Hausman test has been applied to select the most consistent and efficient estimator among MG, PMG and DFE estimators. Hausman test [25] concludes that PMG is the best among all in case of model given above. The coefficient of PMG estimator for terrorist attacks has a negative value (-0.012) which shows that there exists a significant negative relationship between domestic investment and terrorist attacks at 5% level of significance, in the long run. Similarly, electric consumption and telephone lines (proxy for ICT) both have positive relation with the domestic investment. Moreover, the value of average convergence parameter (-0.250) is negative and less than 1. It means that almost 24% of the disequilibrium is adjusted in one year. The p-value of error correction term shows that it is statistically significant at 1% level of significance. We expect no short run relationship in short run because terrorist attacks leave their impact at macro level with the passage of time. The short run parameters give evidence of no significant relationship between domestic investment and terrorist attacks.

Model 2:

The results of Model 2 explain the relationship between foreign direct investment and terrorism.

	Long-term Parameters					
	MG		DFE		PMG	
	Slope	p-value	Slope	p-value	Slope	p-value
N	0.375	0.320	-0.004	0.547	-0.002	0.014
E	5.083	0.277	-0.003	0.817	0.002	0.279
Lt	0.559	0.286	0.974	0.510	0.066	0.078
ECT/ Average Convergence Parameters						
ϕ_i	-0.746	0.000	-0.122	0.531	-0.503	0.004
Short Run Parameters						
ΔN	-0.221	0.317	0.001	0.189	-0.027	0.308
ΔE	-10.503	0.313	0.001	0.044	-0.572	0.243
ΔLT	-0.327	0.680	-0.418	0.158	-0.845	0.404
Const.	-0.327	0.858	-1.145	0.261	0.204	0.187
Hausman Test						
MG & DFE			MG & PMG			
$H_0 =$ DFE is an efficient and consistent estimator while MG is not efficient.			$H_0 =$ PMG is an efficient and consistent estimator while MG is not efficient.			
p-value = 0.865 > 0.05			p-value = 0.513 > 0.05			
Do not reject H_0 , DFE estimator is consistent and efficient.			Do not reject H_0 , PMG estimator is consistent and efficient.			

Source: Authors' estimates

The coefficient of PMG estimator for terrorist attacks has a negative value (-0.002) which shows a negative relationship between foreign direct investment and terrorist attacks in the long run at 5% level of significance. It means an increase in terrorist attacks decreases foreign direct investment as its consequence. Similarly, electric consumption and telephone lines (proxy for ICT) both have positive relation with the foreign direct investment. Moreover, the value of average convergence parameter (-0.503) is negative and less than 1. It shows that approximately 50% of the disequilibrium is adjusted in one year. The p-value for error correction term shows that it is statistically significant at 1% level of significance. We found no short run relationship in short run because terrorist attacks leave their impact at macro level with the passage of time. The short run parameters give no evidence of any significant relationship between foreign direct investment and terrorist attacks.

Model 3:

These results explain the relationship between total investment and terrorism.

	MG		DFE		PMG	
	Slope	p-value	Slope	p-value	Slope	p-value
N	0.309	0.317	-0.004	0.133	-0.014	0.030
E	13.512	0.105	0.034	0.000	0.040	0.001
LT	8.973	0.339	3.170	0.007	0.754	0.164
ECT/ Average Convergence Parameters						
ϕ_i	-0.347	0.000	-0.240	0.000	-0.228	0.001
Short Run Parameters						
ΔN	-0.163	0.320	0.001	0.177	-0.136	0.324
ΔE	12.787	0.329	0.0050	0.141	-4.294	0.436
ΔLT	1.985	0.638	-0.297	0.564	-0.743	0.711
Const.	-0.523	0.951	-2.956	0.411	4.368	0.001
Hausman Test						
MG & DFE			MG & PMG			
$H_0 =$ DFE is an efficient and consistent estimator while MG is not efficient.			$H_0 =$ PMG is an efficient and consistent estimator while MG is not efficient.			
p-value = 0.005 < 0.05			p-value = 0.357 > 0.05			
Reject H_0 , MG estimator is efficient			Do not reject H_0 , PMG estimator is consistent and efficient			

Source: Authors' estimates

Table 4 gives information about cointegration results. Applying Hausman test, the author has found that PMG is the best estimator among all because the probability value of this test is 0.357 which is significant at 5%. Hence accepting the null hypothesis, it is concluded that PMG is consistent and

efficient technique. The coefficient of PMG estimator for terrorist attacks has a negative value (-0.014) which shows negative relationship between total investment and terrorist attacks at 5% level of significance in the long run. It shows that an increase in terrorist attacks results in a decrease in total investment. Furthermore, electric consumption and telephone lines (proxy for ICT) both have positive relation with the total investment. Though the coefficient of telephone lines is not statistically significant yet the positive slope shows a direct relation with total investment in the long run. Moreover, the value of average convergence parameter (-0.228) is negative and less than 1 which proves the existence of cointegration in the model. This parameter shows that approximately 22% of disequilibrium is adjusted in 1 year. The p-value of error correction term shows that it is statistically significant at 1% level of significance. We expect no short run relationship because terrorist attacks do not effect total investment suddenly in short run but it imparts changes with the passage of time. The short run parameters give no evidence of any significant relationship between total investment and terrorist attacks.

4. CLOSING REMARKS

During the time period of 1990-2013, terrorism has played a pivotal role in discouraging domestic as well as foreign investment in South Asian region. This study has used pooled mean group, mean group and dynamic fixed effect estimators to test cointegration among variables. The results have shown that there exists a negative relationship between terrorism and investment in the long run. The alternative hypothesis of long run relation between domestic investment and terrorism is accepted at 5% level of significance which means that higher number of terrorist attacks and violence impede investment by the domestic investors. Similarly, the alternative hypothesis of long run relationship between foreign direct investment and terrorism is also accepted at 5% level of significance. It implies that foreign investors are cautious about business environment in a country. If the returns on investment are reasonable, aggregate demand is high and there is less chance of violence in a country, the inflow of foreign direct investment increases. Whereas the countries where terrorist risk is greater than investor's profits are less likely to attract foreign investments. Thus, one of the causes of declined level of foreign investment is terrorism in South Asian countries. Whether it is domestic investment or foreign direct investment, both are infected with the harms of terrorist activities. Similarly, total investment has been found to have a negative link with terrorism in the long run. The study has the evidence that as the number of terrorist activities rise, there comes a decline in the level of total investment in the ensuing years.

On the basis of results, this study suggests that the government of respective countries should take concrete steps in order to curb the menace of terrorism. The measures to be taken include accountability of seminaries, encouraging social cohesion, better educational quality, ensuring political stability, resolving the religious conflicts and ensuring public awareness. Moreover, in order to promote investment in the respective countries, the government should maintain a conducive environment for the investors. By giving incentives to new entrepreneurs, domestic investment can be boosted. Similarly, creating a peaceful environment for

investment may culminate into bulky inflows of foreign direct investment.

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