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Effect of terrorist attacks on inflation in Pakistan: An ARDL Co-Integration Analysis

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ABSTRACT

The recent study tries to examine that how much terrorist attacks has affected on the inflation of the Pakistan. The Auto Regressive Distributive Lag Model (ARDL) Analysis has been conducted to find results of the study for the period 1972-2017 that show in the short run, terrorist attacks is statistically significant and has positive effect on the economy of the country. Which means inflation will be increased due to increase in the terrorist attacks that will generate the adverse effect on the economy and it will also become the cause of slow pace in the development of the country. But the in the long run results, terrorist attacks have no effect on the inflation because its findings are insignificant.

Government must take immediate steps to control terrorist attacks to save the economy and achieve the required level of the inflation in the Pakistan. Moreover, government should increase the employment opportunities in which people of the country could fulfill their basic requirements of life easily and completely.

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1 Introduction

Inflation plays a vital role in macroeconomics organization. According to classical theory, this is stated that money supply or costs have little effect on the real factors for an economy. In actual words, inflation has little effect on capital allocations and economic efficiency when the economy runs at full - employment, in competitive markets. Terrorism is a reasonable development of act for the deprived to attain basic needs. Actually, many poor people will trade off their own lives for the income for their families, this thing follow them towards terrorist acts. A lot of scholars have discussion over the defense economics financial and effects of terrorism on a country (Shahbaz, 2013). Terrorism can be clear as "the premeditated use, or threat of use, of extra normal violence to obtain a political objective through intimidation or fear directed at a large audience". The finding of many researchers shows that terrorism has adverse influence on the economy in several ways, e.g., it can impact on the economic system and global trade. On the other hand, investment and international trade are extremely correlated with each other and can be oppressed from volatility of managerial international dealing (Bilal, Talib, Haq, Khan & Islam, 2012).

Terrorism is defined as the anticipated risk workout and warning of violence by an individual versus rivals in order to achieve personal, social, economic and political benefits before real and direct damages by attack of a significant addressee. Segregation, extremism and political and social agendas are part of terrorist acts. The terrorist attacks tend to be beat and miss as well as random to create damage in the ambiance along with the addressees. This, in rotate, leads the government legislative body to attach with the terrorists and make an agreement (Shahbaz & Shabbir, 2011). Terrorism is a terrible act for any financial system. It is the preplanned threat of anger by individual or groups for the reason to get social or political objectives. Terrorist behavior has different form like hijacking of aircraft, abductions, murders, pressure, bomb blasts and suicide attacks. These attacks put force on government and thus lead to political concessions. Political somewhere to stay give confidence terrorists to add to their movement in the form of more attack blasts and suicide attacks. Foreign direct investment plays significant role in financial growth of any financial system. FDI reduce poverty and being without a job. FDI plays an important role in the financial growth of a state (Ullah & Rehman, 2014). Terrorism is often viewed in chronological, sociological, emotional, political, or geopolitical terms, but it can have considerable financial repercussions. Calamitous terrorist attacks such as 9/11can dent dealing and purchaser self-assurance, which evils asset and consumption and thus macroeconomic act. Terrorist attacks that aim vital communications such as oil pipelines or railroads can gravely disrupt transport, message, and the entire economy. Indeed, some terrorist attacks are intended to inflict financial damage in the objective state (Estrada, Park, Kim and Khan, 2015). Pakistan has been facing the largest number of terrorist attacks in the last decade. The number of terrorist attacks in the country has increased from two in 2001 to 163 in 2010. There are a number of injuries and deaths in Pakistan due to these terrorist attacks (Abdullah Alam, 2013). By combining this with declaring war alongside terrorism, Pakistan has been badly useful. At the outset, it was anticipated that in budget year 2001-02, the rate of this war against Pakistan would be $2.669 billion, based on the results that the war was supposed to end by December 2001 and that respectability in Afghanistan would return in January 2002 (Farooq & Khan, 2014). The perseverance of the problem of terrorism did not inspire the government or academics of the country to assume a thorough assessment of the expenses of terrorism. No methodical study focuses on estimating the hammering to collective financial variables. Some data are offered on cost of terrorism in Pakistan but they are basic estimates without much technical basis (Sultan Mehmood, 2014).

2 Literature review

In order to achieve personal, social, economic and political benefits through the power of a significant recipient ahead of real and immediate losses, terrorism is defined as the intended activity of danger and alarm to carry out violence by an individual against opponents. Shahbaz (2013) predicts that, thus, findings lead to the advantages of promoting low inflation sustainability in reducing violence. Also, it means such obstacles for policy-makers in Pakistan in their pursuit of economic growth, though the latter would lead to a rise in the activity of terrorism, which would crowd out most of the advantages of economic growth. Bilal et al., (2012) shows that How Terrorism and Macroeconomic Factors have Impact on income. Discoveries of the investigation uncovered co-combination between macroeconomic variables and KSE stock returns which exhibit that biggest value market of Pakistan KSE-100 Index have negative association with Terrorism and causal association with loan fee; though, no relationship is found with expansion. Result of the examination investigated Co reconciliation and long-haul relationship among study factors. Shahbaz and Shabbir (2011) depicted that Is rise in Inflation Responsible for Rise in Terrorism in Pakistan?

The exact proof affirms co integration between swelling, financial development and fear-based oppression in Pakistan. An expansion in swelling raises fear-based oppressor assaults. Monetary development is

additionally a noteworthy supporter of psychological oppression. Besides, bidirectional causality is found among swelling and psychological oppression as explored by VECM Granger-causality approach while fluctuation decay additionally underpins the discoveries by VECM investigation. Ullah and Rehman (2014) observed terrorism and FDI in Pakistan. Psychological warfare is found to have negative and critical effect on remote direct interest in Pakistan. The investigation likewise recommends some strategy suggestions. Catchphrases: Foreign direct speculation, Terrorism, Co-coordination, Pakistan. Estrada et al., (2015) investigated the economic impact of terrorism. Pakistan's econometric survey reveals that a solid economy is a ground-breaking antitoxin that fears exploitation. Similarly, stronger military and non-military staff insight would benefit, as the trendier, more unpleasant Pakistan is less responsive to the ideological exposure of fanatical gatherings if productive need destruction programmes. In addition, a more focused and progressively unbiased equity system would foster social equity and thus moderate Pakistan's affected and ignored social grievances that provide lucrative enlisting grounds for fear-based oppressor gatherings seeking troopers. Abdullah Alam (2013) explains the fear-based oppressor exercises sway the framework and frameworks of a nation. Additionally, speculator dispositions and interests are occupied by such exercises. Thusly, financial exchanges, estimating the wellbeing of an economy, are additionally influenced. Through the empirics of the investigation, it is breaking down that fear mongering adversely effects financial exchange returns over the long haul; while no huge connection between securities exchange returns and psychological warfare is assessed in the short run. Farooq and Khan (2014) cited the foreign direct investment effect of terrorism and key growth parameters in Pakistan. Pakistan has also suffered tremendously economically, financially and socially and politically. It can confidently assume that the costs are much higher than the profits of this battle toward psychological oppression, comparing the gains of the war and the damages suffered. Pakistan is merely a washout on all fronts in this game. Sultan Mehmood (2014) shows the terrorism and the Pakistan,s macro economy. Pakistan with most astounding number of fears mongering related passing's of any nation over the previous decade, the number surpassing the complete psychological oppression related passing's for both the European and North American landmasses, gives a perfect research facility to study effect of psychological warfare on the large-scale economy.

3 Data and Methodology

Time series data over the period of 1972-2017 are used to check the relationship between the terrorist attacks and inflation in the Pakistan. Data source is World Bank and Global Terrorism Database (GTD). Inflation is used as dependent variable and its unit of measurement is consumer price index (annual %) while the terrorist attacks, fuel imports (% of merchandise imports) and official exchange rate (LCU per US$, period average) are used as independent variables in this study. The Auto Regressive Distributive Lag Model (ARDL) econometric methodology is used to analysis the relationship between the variables.

INF = f (TA, IMP, EX)

Inflation is the function of the terrorist attacks, imports and exchange rate.

Econometric model is used to analyze the relationship between dependent and independent variables:

$$\mathbf{INF = \alpha_0 + \alpha_1 TA + \alpha_2 IMP + \alpha_3 EX + \varepsilon}$$

Here,

TA = Terrorist Attack

IMP = Fuel Imports EX = Exchange Rate **ε =** Error Term

4 Results and Discussion

Unit Root Test

Stationarity or non-stationarity of the variables is checked by applying the unit root test. ADF test has chief assumption which is, the error term is independently and identically distributed. To take care of the serial correlation in the error terms after adding lagged differential terms, Phillips and Perron use nonparametric statistical methods. Since the PP test asymptotic distribution is like the ADF test statistics, (Gujarati, 2004).

Table 1: Unit Root Test

		Level		First Difference	
Variables		T-Statistic	Probability	T-Statistic	Probability
INF	ADF	-2.87488	0.0575	-	-
IMP	ADF	-2.78858	0.0679	-	-
-ER	ADF	0.410129	0.9812	-3.973059	0.0035
TA	ADF	-2.18921	0.2129	-4.212475	0.0018

Source: E-View Software 9

Findings of the above table show that all the variables of the model are not stationary at the same level, some variables are stationary at level but some are stationary at first difference.

Auto-Regressive Distributive Lag (ARDL) Approach to Co-Integration

Owing to the above outcomes of the unit root test in which entirely the variables are not stationary at the same level, we used the Auto-Regressive Distributive Lag (ARDL) analysis.

Table 2: Results of Error correction model for short run dynamics

Variable	Coefficient	Std. Error	t-Statistic	Probability
INF(-1)	0.485554	0.119494	4.06341	0.0002
IMP	0.057952	0.16071	0.360597	0.7204
IMP(-1)	-0.39928	0.153906	-2.59432	0.0134
TA	0.006972	0.003139	2.221177	0.0324
TA(-1)	-0.00548	0.003076	-1.7799	0.0831
ER	0.002174	0.034487	0.063044	0.9501
R-squared	0.541406	Durbin-Watson stat	1.396916	
Adjusted R-squared	0.468996	F-statistic	7.476981	
Prob (F-statistic)	0.000025			

Source: E-View Software 9

The results presented in table demonstrate the dynamic relation and the collection of short run coefficients in the model of vector error correction. The Error Correction Model (ECM) correlates inflation changes with changes in other variables and lagging time disturbances.

Table 3: Co-integrating Form and short run Form

Co-integrating Form

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(IMP)	0.057952	0.16071	0.360597	0.7204
D(TA)	0.006972	0.003139	2.221177	0.0324
D(ER)	0.002174	0.034487	0.063044	0.9501
CointEq(-1)	-0.51445	0.119494	-4.3052	0.0001

Cointeq = INF - (-0.6635*IMP + 0.0029*TA + 0.0042*ER + 22.7581)

Source: E-View Software 9

In the short run, the results from table display the actions of the variables. The error correction model (ECM) value remains between 0 and -1 and is statistically significant at the 1 percent level of significance. This shows that the methodology of error correction relatively easily reaches the equilibrium direction monotonically. The lagged error term coefficient is equal to -0.51 and its significance level demonstrates that the variables have a co-integration relationship. Furthermore, it suggests that the deviation from the INF equilibrium level will be reversed by 51.44 percent in the future over the current period.

Table 4: Long Run Coefficients

Long Run Coefficients

Variable	Coefficient	Std. Error	t-Statistic	Prob.
IMP	-0.66349	0.279382	-2.37485	0.0227**

TA	0.002909	0.00371	0.784081	0.4379
ER	0.004226	0.067291	0.062805	0.9503
C	22.7581	5.300199	4.293819	0.0001*

Source: E-View Software 9

Note: '**' show the significance level at 5%

The current study is used inflation (INF) as independent variable and imports (IMP), terrorist attacks (TA) and exchange rate (ER) are used as independent variables. Findings of the table shows long run cointegration relationship among the variables.

The P-value of IMP is 0.0227 and its coefficient is -0.66349. IMP is significant but has negative impact on the inflation that shows as the imports of the country increases by one unit then the decrease of 0.66 units occur in the inflation in the long run. Other variables such as TA and ER are insignificant which means, these variables have no impact on the inflation in the long run of the economy of Pakistan.

5Conclusion

Pakistan has one of a very sensitive issue of terrorist attacks. Previous studies highlight several causes for the terrorist attacks. It smashes the country's economy directly and indirectly by weakening economic growth, increasing unemployment and poverty, decreasing the FDI, crushing the dependence of local investors, affecting financial markets. The recent study tries to examine that how much terrorist attacks has affected on the inflation of the Pakistan. For this purpose, time series data is used for the period 1972-2017. The Auto Regressive Distributive Lag Model (ARDL) Analysis has been conducted to find results of the study that show in the short run terrorist attacks is statistically significant and has positive effect on the economy of the country. Which means as the terrorist attacks increase the inflation in the country will be rise that will generate the adverse effect in the economy and it will also become the cause of slow pace in the development of the country. But the in the long run results, terrorist attacks have no effect on the inflation because its findings are insignificant. According to the findings of the study, government must take immediate steps to control terrorist attacks to save the economy and achieve the required level of the inflation in the Pakistan. Moreover, government should increase the employment opportunities in which people of the country could fulfill their basic requirements of life easily and completely.

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