

The Impact of Terrorism on Foreign Remittances Inflows in Pakistan

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ABSTRACT

The present study examined the short and long run impact of terrorism on foreign remittances in Pakistan considering annual time series data from 1995 to 2014. Various econometric techniques has been applied for examining the stated relationship. The long and short run relationship is tested using Johansen and Juselius cointegration analyses. The unit root analyses indicate stationarity of all variables at 1st difference. The results of cointegration test represent significant positive effect of terrorism on foreign remittances. This represents the phenomena that increase in terrorism, compel workers to go abroad in safe country and earn their income abroad. Further, There is insignificant effect of unemployment, market size and trade openness on foreign remittances. The results of granger causality show bidirectional relationship between foreign remittances and GDP and between foreign remittances and terrorism index. The variance decomposition of foreign remittances show that most of the variances is explained by their own variances while other variables doesn't exhibit any changes in the foreign remittances variables. The results of impulse response function indicate that most of the variables responds to their own shocks.

KEY WORDS: Terrorism, Co integration, Foreign Remittances

INTRODUCTION

1.1 Background of the Study

Remittances can be simply defined is the transfer of foreign money by the migrant workers into their home countries. According to Ratha (2003) remittances is the sum of three components, first foreign remittances under the heading of “current transfer” in the current account of BOP, second employee’s compensation under the heading of “income”, which consist of wages, salaries, and some other benefits, third is migrant’s transfer which are recorded under the heading of “capital transfers”. Because of the absolute volume magnitude of the remittances, and supremacy of these flows compared to the FDIs, development assistance and in some cases the trade related transactions, the development experts inclined to focus and examine the importance of remittances which are generally regarded as a dependable sources for growth, enhancing welfare and poverty mitigation in the developing world. Remittances directly make a growth in the recipients’ income, smoothening consumption and facilitating investment in human capital, a major source of development.

The major indicators for the indirect effects of the remittances are the growth in GDP, increase in fiscal space and the access to foreign exchange. If remittances are compared on the basis of crises in the home countries, the effect will be different on the behalf of both of receiver and sender. The country where there are crises such as terrorism will have no impact on remittances flow, because the sender is living abroad and can easily send the remittances to remove their families from the crises. For example in case of Pakistan, when the operation started in KPK the effect was recorded only on the receiver side, the workers who were working in the GULF or some other countries sent remittances easily. It is not only in case of Pakistan, remittances also help the people of Sri Lanka during Tsunami and Bangladesh during Floods. So remittances is the stable form of foreign inflows as compared to other form of inflows (FDI & FPI). The different types of remittances are, family remittances, migrant worker remittances, social worker remittances, and community remittances.

Remittances are sent on yearly basis for the purpose to remove poverty. Foreign remittances are sent in bulk by those who are doing job abroad or education. Community remittances are the remittances sent by the individual immigrants and different associations to organizations and communities in their home country. These type of money are used for the developmental activities of communities, like for infrastructure, building, church, parks, roads, education, health and employment. Social remittances are composed of different ideas and social capital which is the back bone of remittances. Thus social remittances assist the traditions and culture of one

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race or community, to socialize with the cultures and traditions of another community. Social Remittances help in the bonding of people and do not have money associated with them.

What are the main determinants of remittances? On the behalf of this question different researchers investigate different determinants. According to Sakka and McNabb (1999) the major determinants are, the income level, interest rate differential, black market and the official exchange rate differential of both the sending and receiving countries.

Different researcher have found different determinants of remittances, such as, GDP per Capita, unemployment, CPI, trade openness, debt, economic growth, polity, corruption, durability and poverty. For a country which is capital deficit like Pakistan, workers' remittances are considered the important source of foreign exchange. This leads to improve balance of payment and decreased dependency on foreign loans in Pakistan. These flows can recover the effect of oil price shocks, lead to reduction in unemployment which can improve the life standards of the recipient of Pakistan.

In the past slight focus has been given to the impact of terrorism on remittances. There is few empirical research on this study. In this study different determinants of remittances will be observed, such as unemployment, CPI, exchange rate, trade openness, market size and index of terrorism will be used which contains the element of events, injuries and fatalities.

Pakistan is the populous country having 193 million of citizens. Due to certain reasons it has a tendency to export its main power in order to get foreign exchange in the shape of remittances. Unemployment is the main cause of migration of the people in Pakistan, many workers find it best to go abroad and earn money for the betterment of family. The unemployment rate in Pakistan was about 8% in 2000. Pakistan always has trade deficit due to which government is compelled to build up such procedures and policies that enhance foreign exchange earnings. So the remittances play important role in order to increase the foreign exchange earnings after exporting. So the government has found a separate ministry (Ministry of Overseas Pakistanis) to produce foreign exchange and to decrease unemployment.

The terrorist groups are financed through different ways such as paid ransoms, robberies like bank robberies, and some other illegal activities or remittances. The relation between remittances and terrorism is not new. May researchers investigate that remittances are the sources of funding terrorism. According to Elu and Price (2011) remittances were the major sources of funding in sub Saharan Africa.

Terrorism is not new to Pakistani society; it intensified after the second Afghan war. Pakistan is affected by the war in Afghan because of neighborhood. Pakistan has lost \$ 68 billion due to US attack on Afghanistan. This study will analyze the impact of terrorism on foreign inflows, in which the relationship of terrorism on remittances is included. Terrorism has direct impact on migration because terrorists produce fear in the mind of the people by force or by some other illegal means. Due to fear people are compelled to migrate into the other areas of the same country or move into foreign countries. Due to terrorism the economic life of the people becomes insecure due to which the people tend to migrate into the safer economy in order to get advantages from the economic opportunities. The terrorist attacks also make the people IDPs, but they do not feel secure until they leave the country.

1.2 Objectives of the study

- To find the long term relationship of terrorism with Remittances inflows in Pakistan.
- To find out whether terrorism can be a determinant of the Remittances.

2.1 Literature Review

Russels (1986) detected the two significant groups of the worker's remittances. The first one is socio demographic features of migrants and their families and the second one is the macroeconomic and political variables. According to him, the first group covers the factors like females ratio in population in the host country, income level of host and marital status, educational year & occupational level of migrants. The second group is almost related to macroeconomics and political variables that consists of inflation, real wage rate, political and economic condition, growth, employment and number of workers. Russell (1986) disclosed various macroeconomic determinants of remittances, which are exchange rate, interest rate volatility, political risks, economics situation of both the host and foreign countries and the migrant's income level. High rates of inflation in the home country could cause increased migration due to the fact that real income would be unstable in the home country. This causes more inflow of funds into the country. However, the authors also noted that if inflation depreciated the domestic currency, then there would be less pressure for migrants to remit more foreign currency.

Datta (1998) categorized Push and pull factors as a negative and positive factors. According to him Push factors are negative factors while Pull factors are the positive factors. Ahmad et al (2008) observed the macroeconomics variables of international migration from Pakistan. They focused on the basic theory of Push and Pull of migration, which shows the economic determinants of migration of countries. For this study they used time series data ranging from 1973-2005. For long run and short run investigation they applied the two

important methods Co-integration and error correction model. The key variables they used are real wage rate and inflation. Beside these variables they also used some other control variables like unemployment rate and market size. The dependent variables are remittances and the number of migrants from Pakistan. From the result they observed that unemployment rate, inflation and real wage rate are considered to be the push factors for migrants. Further investigation narrowed down the research that among these variables unemployment and inflation have positive relation with remittances and with the real wage rate the relation is negative in case of Pakistan. They also observed the positive relationship between market size and international migration. So they viewed remittances as the pull factor which causes to attract a large number of migrants.

The inflation rate at the source country is another macroeconomic element of migrants' remittances. As high inflation affects the left-behind family's income level negatively, remittances may increase because of the altruism motive explained above. However, high inflation may be interpreted as a signal of instability as well and therefore generates a decrease in remittances (Glytsos, 1988; Elbadawi and Rocha, 1992; Aydaş et al., 2004). Inflation has negative impact on workers remittance, [Katselli and Glytsos (1986); Elbadawi and Rocha (1992)] Adams (1998) demonstrated that worker remittances do have significant positive effects on domestic savings and financial investment. Blade (2011) used the data for more than 30 SSA countries for the period between 1980 and 2004. He investigates the effect of saving and remittances on investment by using the OLS and 2SLS techniques. They observed that remittance and foreign aid have positive impact on saving and investment in SAA. There is significant impact of remittances on GNP growth and savings in case of Pakistan (Burney's, 1987). He used the data from 1969 to 1986 to find the empirical result while observing the impact of remittances from the Middle East to Pakistan.

Katseli and Glytsos (1986) studied the Greek data. They used the data from 1961 to 1983. For their study they used the two countries Germany which they considered the host country and the Greece which is the home country. Their pragmatic results propose that in host country remittances have positive association with income per capita while in the home country the relation is negative with income and real interest rate. In the case of German economy the increase in interest rate leads to enhance in remittances outflows from Germany to Greece.

There are different variables which have different impact on remittance, among them are black market premium and differential rate, while observing these variables different researchers found different results. Wahba (1991) stated various determinants of remittances; he found that interest rate differential and black market premium have long term relationship with remittances. Elbadawi and Rocha (1992) proposed no significant effect of differential interest rate on remittances, while Sakka and McNabb (1999) detected negative impact of differential interest rate on remittances. To which extend remittances are affected by the origin country's currency policies and the interest rate differentials compared with the host country, is another issue for the ongoing debates. While according to Swamy, 1981; Straubhar, 1986 and Chami et al. 2003 there is no relationship between remittances and black market premium and differential interest rate, but in case of Turkey the relationship is negative. Indeed, Aydaş et al. (2004) argued that Turkish workers' remittances increased with interest rate differentials from 1979 to 1993. Using more recent data (1993-2003) on Turkey, Alper (2005) concluded that remittances are positively related with the interest and currency rates on the long-term and having negative relation with the dependent variables in the short run.

The previous literature also shows different results about exchange rate. Swami (1981) and Glytsos (1988) have observed negative relationship between exchange rates and remittance flows. Aydas et al (2004) selected Turkey for their study and observe the determinants of remittances in Turkey. They used various macroeconomic variables. But according to my focus inflation rate, exchange rate and growth rate are important for my research. They found the negative relationship between inflation rate and remittances, it means that in Turkey inflation rate is a push factor. On the other hand they found that there is a long run impact of exchange rate and growth rate on remittance in Turkey. They observed that later variables attract a huge amount of remittances into Turkey. Chandavarker (1980) revealed that exchange rate has positive relation with remittances. Dorantes and Pozo (2004) examined that the real exchange rate would appreciate about 22 percent while doubling the worker remittances by studying the panel of 13 LAC countries. Remittance flows were a considerable source of foreign exchange; according to Wahba (1991) study. Remittances accounted for 41% of Egyptian exports of goods and services. The Egyptian government had therefore made efforts to increase the remittance flows through formal channels by not taxing interest accrued on officially held deposits of foreign currency and by issuing bonds in foreign exchange denominations to Egyptians living in other countries.

Kumar (2010) used annual data from 1981 to 2008. They studied the impact of remittances and trade openness on income in Vanuatu. They found that trade liberalization in goods and services boost remittances which led to growth in income in Vanuatu. Hussain and Syed (2012) examined the impact of remittances on investment in Bangladesh. They applied the ARDL test with CUSUM & CUSUMSQ tests. According to them remittances and trade openness have positive impact on investment in Bangladesh? They further added that favorable policies for attracting more remittances will enhance investment in Bangladesh. A number of studies examined positive relationship between remittances and economic growth. There is significant positive relationship between remittances and economic growth (Taylor, 1992; and Faini, 2002). Remittances can assist

the entrepreneur by providing much required funds to handle different hurdles in the way of growth. They can provide funds for education and health via remittances thereby enhancing growth. When the remittances are through formal channels can improve the strength of the country to get approach to international capital market. Chami et al. (2003) examined the negative impact of remittances on GDP growth. For their study they used panel data analysis and took the data of 113 countries. On the behalf of negative impact of remittances on GDP growth the acme the clear evidences i.e., compensatory flows and countercyclical nature of remittance and significant constraints in the way of converting remittances into fruitful investments. Ahmad (1986) argued that remittances have no effect on GDP growth. Al Khathlan (2012) used ARDL and ECM econometric tools to find the long and short run relationship between worker remittances and economic growth in Pakistan. The data he has taken for the study from 1976-2010. The results indicate the presence of long and short run relationship between workers remittances and economic growth in Pakistan while Inflation rate has negative impact on both in short and long run in that country. Fayissa and Nsiah (2008) focused on economic growth and remittances. For their study the collected data from 37 African countries. They examined that there is positive relationship between remittances and growth. It means that when the remittances increased into these countries the market size will enhanced and therefore will enhanced the life standard of the people. Habib and Nourin (2006) observed the mix affect of remittances on economic on economic growth in different economies of south and South East Asia. They found in some countries the impact is positive while in some countries the impact is negative. Countries like Srilinka, Indonesia, India, and Thiland the impact is negative while the relationship between remittances and growth is positive in Pakistan, Philippines and Bangladesh. Chami and Jahjal (2003) observed the negative impact of worker remittances on economic growth. They gave the reason for that most of the inflow in the shape of remittances are spent in personal consumption like build houses, purchase of land, or buying jewelry. Pone et al (2010) studied the macroeconomic determinants of remittances in dollarized economies. Different determinants they used like GDP, interest rate differential, M 2, and employment rate. By using the co-integration and common cycle test they concluded that with GDP the relation of remittances is negative while with the rest of the determinants the positive relation is found.

3.1 Data and Methodology

The data and methodology details has been given in this section. First in section 3.1 information about the data and sample size has been given. Then section 3.2 shows information about the methodology has been presented.

3.1 Data

The study intends to examine the long run dynamic relationship between Terrorism and foreign remittances. In this study time series yearly data is used from 1995 to 2014. The dependent variable is foreign remittances and the explanatory variables are; market size (GDP), Unemployment (UM), Trade openness (TO) and the Terrorism index. Terrorism index is composed of Events, Fatalities and Injuries. Terrorism index was measured as 0.50EV, 0.25FA and 0.25IN. Kamran (2013) also used this index for his study. The data is obtained from World Develop Indicators (World Development, 2013), State Bank of Pakistan and Transparency International. For terrorism data is taken from Global Terrorism Database (GTD) is used.

3.3 METHODOLOGY

The relationship between Terrorism and Foreign Remittances has been examined using the following econometric specification.

The model used for the estimation is given as follows.

$$\text{LnFR} = \beta_0 + \beta_1 \text{Ln GDP} + \beta_2 \text{LnUM} + \beta_3 \text{LnTO} + \beta_4 \text{LnTIND} + \mu_t \dots \dots \dots (3.1)$$

Whereas, LnFR stands for Natural log of foreign Remittances, Ln GDP for Natural log of gross domestic product, LnUM for Natural log of Unemployment, LnTO for Natural log of trade openness, LnTIND for Natural log of terrorism index and μ_t stands for error term.

Various econometric techniques including correlation matrix, Augmented Dickey Fuller test, Johansen and Juselius co-integration analysis, Granger Causality test and Vector auto regression has been applied for the estimation of the results.

4.1 Results and Discussion

The present section shows the results and discussion of the study.

4.1.1 Descriptive Statistics

Table-4.1 explains descriptive statistics. The average yearly inflows of Foreign Remittances are 77.7 % into Pakistan. The maximum flows of Foreign Remittances into Pakistan is 90%. The volatility is recorded as 74.5%. Similarly, the average yearly unemployment in Pakistan is 1.84% and having the range from 1.64% to 2.13 %. The average growth rate is 124.5% and the volatility is 52.44 %. The volatility is recorded as 16.14 %.The average increase in the value of currency of Pakistan is 4.124%. The volatility in Trade openness is19.27%.The

average terrorism in Pakistan is recorded as 225.04%, which has a range from a minimum of 196.40 % to a maximum value of 255.50%. The average yearly changes in terrorism index is 16.87%. The data is positively skewed except GDP and trade openness which are negatively skewed. All the data are normally distributed.

Table 4.1. Descriptive Statistics

	LNFR	LNGDP	LNT0	LNUM	TIND
Mean	7.777045	1.240481	-0.248738	1.841109	5.957892
Median	7.494646	1.313149	-0.246706	1.774952	5.777507
Maximum	9.094470	2.036965	0.068674	2.137023	7.643004
Minimum	6.891351	0.014293	-0.619698	1.648659	4.494239
Std. Dev.	0.745702	0.522149	0.197009	0.165048	1.045996
Skewness	0.402971	-0.591409	-0.052426	0.647911	0.084798
Kurtosis	1.667774	2.883105	1.925864	1.879467	1.648927
Jarque-Bera	2.020307	1.177270	0.970636	2.445626	1.545134
Probability	0.364163	0.555085	0.615501	0.294401	0.461826
Sum	155.5409	24.80963	-4.974768	36.82219	119.1578
Sum Sq. Dev.	10.56535	5.180154	0.737442	0.517577	20.78803
Observations	20	20	20	20	20

4.1.2 Correlation

The correlation analysis explained in table 4.2 exhibits that log of unemployment and trade openness is negatively correlated with log of foreign Remittances. The analysis also approves that LnGDP and LnTIND are positively correlated with Foreign Remittances. In the following mentioned variables the highest correlation is found between Terrorism Index and Trade Openness. There is a weak correlation exist between foreign Remittances and the explanatory variables. The correlation between GDP and Foreign Remittances is positively correlated, it means when the number of people migrate in large amount into the foreign countries the flow of funds will increase and hence will increase the growth in GDP in Pakistan. The relation between foreign Remittances and unemployment is negative, which indicates that the funds which flows into the country in the shape of remittances are not properly spent on production or starting a new businesses, but largely spend on daily household consumption. The relationship between Foreign Remittances and Terrorism Index is positive, the theory behind this is “the push and pull factory theory”. The terrorism is the push factor which indicates that when terrorism increase in the country (Pakistan), the people will migrate into the foreign countries, which increase the flow of funds into Pakistan.

Table 4.2: Correlation Test Results

	LNFR	LNGDP	LNT0	LNUM	TIND
LNFR	1.000000				
LNGDP	0.062750	1.000000			
LNT0	-0.300690	0.237505	1.000000		
LNUM	-0.135092	0.248700	0.700996	1.000000	
TIND	0.147690	-0.118139	-0.781927	-0.660452	1.000000

4.1.3 Unit Root Test

Table 4. 3 exhibits the ADF and PP tests for the LnFR, LnGDP, LnUM, LnTOand LnTIND. According to ADF test all the variables are non-stationary at level and stationary at first difference and PP test confirm the results. Thus, we observed that the series is 1(1).

Table 4. 3: Unit Root Test Results

Variables	ADF		PP	
	Level	1 st Diff.	Level	1 st Diff
LNFR	-1.639806	-3.816066	-1.638353	-3.801721
LNGDP	-1.663512	-5.237191	-1.708087	-5.536120
LNT0	-1.358238	-4.357453	-1.352030	-4.357453
LNUM	-1.532205	-3.720131	-1.548678	-3.379321
TIND	-0.859074	-5.186609	-0.859074	-5.274911
Critical Values				
1%	-3.486551	-3.486551	-3.486551	-3.487046
5%	-2.886074	-2.886074	-2.886074	-2.886290
10%	-2.579931	-2.579931	-2.579931	-2.580046

4.1.4 Vector Auto regression results

Lag Length Criteria is used for a selection of suitable lag value. We use value of Schwarz Criterion (SC), and it is minimum at lag 1, which indicates that this lag is suitable for testing co-integration between Terrorism and Foreign Remittances. Table 4.4 shows the lag criteria.

Table 4.4: Statistics for selection of lag order

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-29.20520	NA	3.08e-05	3.800577	4.047903	3.834680
1	14.14201	57.79628*	4.57e-06*	1.761998	3.245951*	1.966616
2	45.34547	24.26936	5.44e-06	1.072726*	3.793306	1.447857*
<ul style="list-style-type: none"> ▪ indicates lag order selected by the criterion ▪ LR: sequential modified LR test statistic (each test at 5%level) ▪ FPE: Final prediction error ▪ AIC: Akaike information criterion ▪ SC: Schwarz information criterion ▪ HQ: Hannan-Quinn information criterion 						

4.1.5 Johansen and Juselius Co-integration Test

Table 4.5 and 4.6 show the results of Trace statistics and Maximum Eigenvalue respectively.

Table 4.5: Trace Statistics of Multivariate Co-integration (Unrestricted)

Hypothesized		Trace	0.05	
No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob.**
None *	0.922916	98.51397	69.81889	0.0001
At most 1 *	0.788743	52.38252	47.85613	0.0177
At most 2	0.568635	24.39831	29.79707	0.1841
At most 3	0.367861	9.263913	15.49471	0.3415
At most 4	0.054476	1.008282	3.841466	0.3153
<ul style="list-style-type: none"> • Trace test indicates 2 cointegrating eqn(s) at the 0.05 level • * denotes rejection of the hypothesis at the 0.05 level • **MacKinnon-Haug-Michelis (1999) p-values 				

Table 4.6: Maximum Eigen Value of Multivariate Co-integration (Unrestricted)

Hypothesized		Max-Eigen	0.05	
No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob.**
None *	0.922916	46.13145	33.87687	0.0011
At most 1 *	0.788743	27.98422	27.58434	0.0445
At most 2	0.568635	15.13439	21.13162	0.2796
At most 3	0.367861	8.255631	14.26460	0.3533
At most 4	0.054476	1.008282	3.841466	0.3153
<ul style="list-style-type: none"> ▪ Max-eigenvalue test indicates 2 cointegrating eqn(s) at the 0.05 level ▪ *Denotes rejection of the hypothesis at the 0.05 level ▪ **MacKinnon-Haug-Michelis (1999) p-values 				

Table 4.5 fails to reject the null hypothesis of no co-integration between Terrorism and Foreign Remittances for the period of 1/1/1995 to 30/12/2014. The trace test shows the existence of 2 co-integration equation at 5% significant level. Thus the results shows the presence of long term relationship between Terrorism Index and Foreign Remittances. The maximum Eigen value also have one co-integration equation (Table: 4.6). As both, trace statistics and maximum Eigen value show the co-integration equation, so this means that there exists the long term relationship between terrorism index and Foreign Remittances. After normalizing the first co-integration vector on Foreign Remittances, normalized co-integration coefficient were estimated as reported in Table 4.7.

Table 4.7: Normalized Co-Integration Equations

LNFR	LNGDP	LNTO	LNUM	TIND
1.000000	-1.26684	-0.69148	0.65927705	-0.45793306
SE	(0.12614)	(0.1585)	(0.50309)	(0.17304)
t-statistics	10.04319	-4.362673	1.310455	2.6464

The long run equation is estimated as:

$$\Delta FR = 1.26684\Delta GDP + 0.69148 \Delta TO - 0.65927\Delta UM + 0.45793\Delta TIND$$

(10.04319) (4.362673) (-1.310455)(2.6464)

The focus of this study is on foreign Remittances and Terrorism Index, where ΔWR is the dependent variable, so evaluating the impact of ΔGDP, ΔUM, ΔTO, ΔTIND on foreign Remittances, and the co-integration vector is normalized with respect to ΔFR. Therefore;

Above is the equation of Co-integration, which shows different relationship between the dependent variable “Foreign Remittances (ΔFR), and explanatory variables i.e, Unemployment, Trade Openness, Market size and Terrorism Index. There is insignificant relationship between remittances and unemployment, it means that with the change of foreign Remittances there will be no affect occur on the unemployment. Theoretical reason is that most of the funds are used for daily consumption. The relationship between Trade Openness and foreign Remittances is significant positive. This point to the evidence that trade openness increases remittances positively.

There is significant relationship between foreign Remittances and market size, the result shows when the remittances increases the size of the market will also grow which is related to the result of Bandera & White (1968) and Dunning (1980), who explained that foreign inflow impact the market size. Similarly, remittance has high positively significant relationship between foreign Remittances and terrorism index. According to “push and pull” theory terrorism is push theory which push the people towards the secured countries to invest there and to send the money for their families or for investing the money in their home country. Thus the result is valid to push and pull theory.

4.1.6 Vector error correction model

The relationship between foreign Remittances and other explanatory variable is examined using vector error correction model. The analysis showed insignificant effect of trade openness and unemployment in short run. The analyses further find evidence of the positive effect of GDP and terrorism on foreign Remittances on economic growth of Pakistan.

Table 4.8. Vector error correction model

Variables	Coefficient	Standard error	T-statistics
C	-0.002654	0.16540	-0.01605
D(TIND(-1))	0.47564*	0.23586	2.01662
D(LNUM(-1))	0.454140	1.76645	0.25709
D(LNTO(-1))	-0.667511	2.07736	-0.32133
D(LNGDP(-1))	0.33569*	0.12781	2.62647
D(LNFR(-1))	0.15754*	0.02035	7.8778
CoIntEq1	-0.16352	0.05045	3.2414

* indicates p < 5%

4.1.7 Granger Causality Test

The table shows no bidirectional and unidirectional relationship between foreign Remittances and other variables. The relationship is unidirectional between trade openness and terrorism index. There also unidirectional; trade openness and unemployment. There is also unidirectional relationship from unemployment to GDP. The unidirectional causality is found from GDP to trade openness.

Table 4.9: Granger Causality Test

Null Hypothesis:	Obs	F-Statistic	Prob.
TIND does not Granger Cause LNFR	19	0.42963	0.5215
LNFR does not Granger Cause TIND		0.88097	0.3619
LNUM does not Granger Cause LNFR	19	1.61749	0.2216
LNFR does not Granger Cause LNUM		3.42516	0.0828
LNTO does not Granger Cause LNFR	19	0.01377	0.9080
LNFR does not Granger Cause LNTO		0.44235	0.5155

LNGDP does not Granger Cause LNFR	19	1.21624	0.2864
LNFR does not Granger Cause LNGDP		0.00131	0.9716
LNUM does not Granger Cause TIND	19	0.00269	0.9593
TIND does not Granger Cause LNUM		1.76273	0.2029
LNTO does not Granger Cause TIND	19	4.89626	0.0418
TIND does not Granger Cause LNTO		2.70933	0.1193
LNGDP does not Granger Cause TIND	19	1.10597	0.3086
TIND does not Granger Cause LNGDP		1.48455	0.2407
LNTO does not Granger Cause LNUM	19	4.84504	0.0428
LNUM does not Granger Cause LNTO		0.44852	0.5126
LNGDP does not Granger Cause LNUM	19	0.83905	0.3733
LNUM does not Granger Cause LNGDP		5.24915	0.0359
LNGDP does not Granger Cause LNTO	19	10.0462	0.0059
LNTO does not Granger Cause LNGDP		2.83745	0.1115

4.1.8 Variance Decomposition

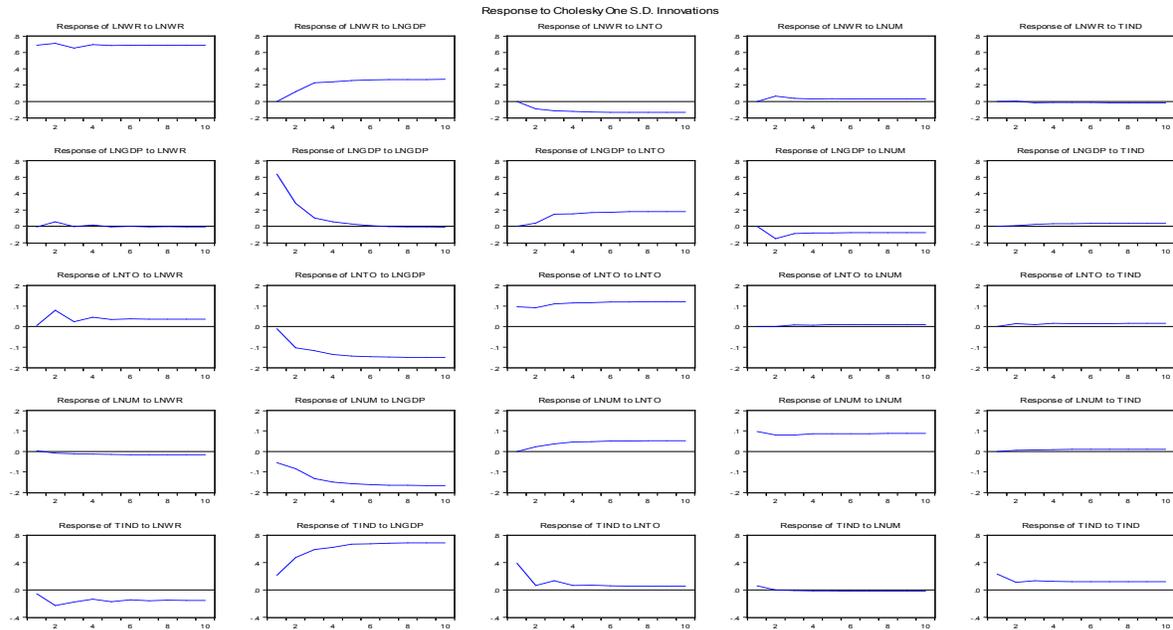
Table 4.10 explains the decomposition of forecast error variance for the foreign Remittances that is explained by terrorism index and monetary variables. The result shows that 87% volatility in foreign Remittances is due to its own internal dynamics, while the other variables have a small contribution in the volatility of foreign Remittances. The contribution of unemployment is 1.38%, Trade Openness is 7.41%, GDP is contributing 4.12%. On the other Terrorism index has 0.08% contribution in the volatility of foreign Remittances. . However Trade Openness and GDP are major sources of volatility in Foreign Remittances.

Table 4.10: Variance Decomposition

Period	S.E.	LNFR	TIND	LNUM	LNTO	LNGDP
1	0.689252	100.0000	0.000000	0.000000	0.000000	0.000000
2	1.005008	97.38564	0.008498	0.000570	1.933533	0.671762
3	1.225995	93.77385	0.009019	0.397905	3.850359	1.968870
4	1.434787	91.93424	0.008105	0.674232	4.845511	2.537908
5	1.614996	90.46346	0.007522	0.871332	5.633716	3.023973
6	1.780379	89.38239	0.007969	1.032042	6.201985	3.375616
7	1.932153	88.57046	0.007995	1.154818	6.628216	3.638514
8	2.073230	87.94776	0.008204	1.249909	6.953229	3.840901
9	2.205552	87.45889	0.008325	1.325110	7.208472	3.999200
10	2.330419	87.06629	0.008447	1.385710	7.413011	4.126541

4.1.9 Impulse Response Function Results

This show that any shock that arises in independent variable that is transmitted to dependent variable and have some effect on it or not. The results indicate that most of the variables responds to their own shocks.



Conclusion

This study examined the long and short run effect of terrorism on foreign Remittances in Pakistan. This study opted time series yearly data for examining long run relationship. The effect of terrorism is examined by using a terrorism index, which comprises of weights of deaths, fatalities and injuries. The long and short run relationship is examined using Johansen and Juselius cointegration analyses. The unit root analyses indicate stationarity of all variables at level. The long run Johnsen and Juselius cointegration represents significant positive effect of terrorism on foreign Remittances. This represents the phenomena that increase in terrorism, compel workers to go abroad in safe country and earn their income abroad. Further, There is insignificant relationship between remittances and unemployment, it means that with the change of foreign Remittances there will be no affect occur on the unemployment. Theoretical reason is that most of the funds are used for daily consumption. The relationship between Trade Openness and foreign Remittances is also insignificant. There is significant relationship between foreign Remittances and market size, the result shows when the remittances increases the size of the market will also grow. Further, granger causality show unidirectional causality from trade openness to terrorism index. There also unidirectional; trade openness and unemployment. There is also unidirectional relationship from unemployment to GDP. The unidirectional causality is found from GDP to trade openness. The variance decomposition of foreign Remittances show that most of the variances is explained by their own variances while other variables doesn't exhibit any changes in the foreign Remittances variables. The results of impulse response function indicate that most of the variables responds to their own shocks.

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