# Worker's Remittances and GDP Growth in Pakistan

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**ABSTRACT:** The worker's remittances are considering second largest source of finance in developing countries after FDI. Worker's remittances and GDP growth has analyzed for Pakistan for the period from 1973 to 2011. The Generalized method of moments (GMM) has used to control endogeniety problem and GMM also employed to handle unobservable effects. The study showed that worker's remittances are positive as well as significant with GDP growth and also playing an active role in Pakistan economy. Impact of financial sector on GDP growth is also positive and significant as trade openness and world growth GDP. The vital policy based on our finding is financial sector should be improve for smooth and horizontal transection of remittances and also this sector perform productive investment.

**Keywords:** remittances; volatility; FDI; GMM; financial development
**JEL Classifications:** E01; F24; F43

## 1. Introduction

In the word of Russell and Teitelbaum (1992) "worker's remittances constitute an important mechanism for the transfer of resources from developed to developing countries". Globalization is the feature that is liable for increase in remittances inflow to emerging economies. Actually the term "remittances" can be defined as financial inflow to home country from abroad by migrant.It has become an important source of foreign exchange earnings for developing economies. The remittance is paramount indicator of economic condition for the remittances recipient's economies.

Remittance is second largest source of foreign finance after Foreign Direct Investment (FDI). It is most stable source of foreign finance in developing economies as compared to FDI, foreign aid (Ratha, 2003) and foreign debt. The empirical literature indicates that remittances to developing economies have increased with vigorous rate. The world Bank (2012) reported that remittances to developing economies has accounted 381 billion dollar with 11.7% growth rate and World Bank also forecast the flow of remittances to developing world is expected 8%,10%, and 10.7% in 2013,2014 and 2015 respectively.Majority of Pakistani's settled in Western Europe, North America and also in oil producing Arab states (after 1973) played an important role in Pakistan's economy and foreign exchange reserve. State Bank of Pakistan (2011) reported, the remittances sent to Pakistan by her migrant workers first time crossed $11 in the fiscal year 2010-2011 which is highest amount in any fiscal year in the history of Pakistan.

The target of remittances to Pakistan in the fiscal year (2011-2012) is $ 9 billion (SBP, 2011). The main reason of this hike in remittances is due to an increase in worker migration and higher skill levels of migrating workers have helped drive and sustain the increase in remittances (World Bank 2011). As it can be seen in figure 1, the flow of workers' remittances to Pakistan has more than quadrupled in the last eight years (IMF, 2011). Like other developing countries worker's remittances also a key factor of foreign exchange for Pakistan. Empirically study indicates that remittances to Pakistan play significant role on Pakistan's economy, performs beneficial functions as better balance of payments, reduction in poverty, reduced unemployment problem and improve the living standard of receiver households. Remittances inflow to Pakistan increases after 2000 rapidly, Actually  in early

2000, Pakistan's foreign exchange system was liberalized, and since then spreads between the official exchange rate and the curb rate have been small. This may have resulted in a shift of remittance transfers from the Hawala (hundi) system to formal channels (Kock and Sun, 2011).

**Figure 1. Remittances to Pakistan (Billion PKR): 1973-2011**
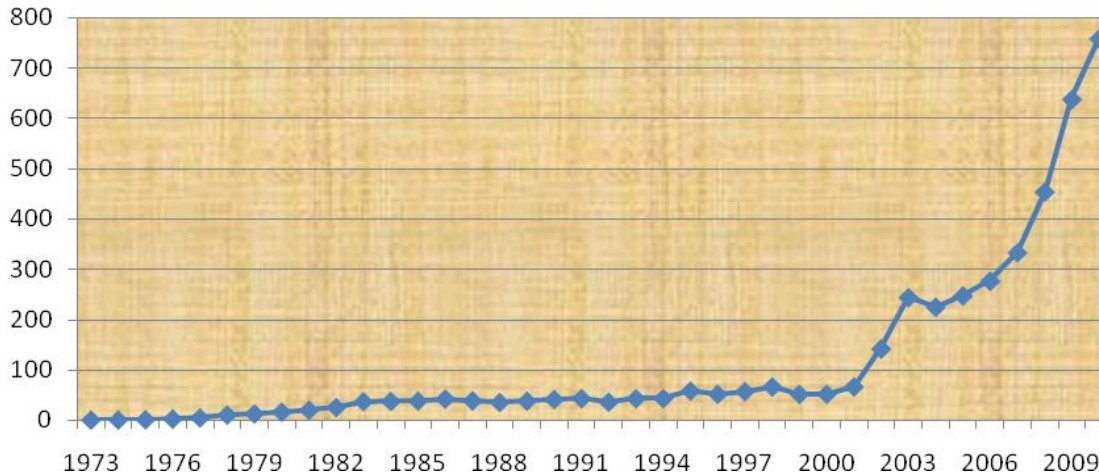


Source: State Bank of Pakistan

Remittances are the second main factor of Pakistan economy after FDI. Mainly use of remittances in Pakistan is for household consumption but it is not remarkable for investment. As empirically study indicates that Pakistan received significant amount of remittances during the last three decade (Kock and Sun, 2011), but volatility of remittances were also observed. The main objectives of the study are following (a) to analyses the impact of remittances on GDP growth of Pakistan from 1973 to 2011, actually is remittances impact are positive and significant? Here we are analyzing relationship between remittances and GDP growth for Pakistan and (b) to examine the cyclical behavior of remittances inflow to Pakistan. Second objective of the paper is that remittances inflow to Pakistan is countercyclical or pro-cyclical.

**2. Review of Literature**

Irfan (2011) examined the impact of remittances on poverty in Pakistan. Two sorts of data have used for this study, firstly Survey data (HIES) 1996-97 and 2006-07 has employed for Pakistan. Secondly time series data of Pakistan has employed from 1975 to 2009. The author use OLS methodology for investigation remittances impact on poverty. The study found that remittances are prone for alleviating poverty in Pakistan.

Remittances, financial institutes relationship with GDP growth is examined by Khalid et al. (2011). For this study they used the annually data of Pakistan from 1973 to 2010. The mythology adopted for this study is Bond Test. Bond test is the modified version of ARDL model. The study resulted that remittances are procyclical in nature and increase in remittances when home country is progressing and remittances decreases when home countries is downturns (counter cyclical). The study further investigated that development in financial sector can be factor to boost in remittances in home economy.

Remittances and economic growth for Turkey is examined by Karagoz (2009). The annual data from 1970 to 2005 is used for Turkey for this study and two methodologies are adopted by Karagoz (2009) cointigration and OLS Parameter. The study resulted that remittances inflow to Turkey is significant but negative link with economic growth. The study further resulted that the third generation of turkey is working in Western Europe those are not willing to remit due to strong entrepreneurial skills, due to this factor it is very difficult for turkey to re again more remittance inflow to Turkey as in past.

Shahbaz and Amir (2009) examined the determinant of worker's remittances for Pakistan. This study is observed for the period from 1971 to 2006. ADF procedure is used for variable are

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stationary or not, after this they adopted ARDL methodology approach for cointegration. The study resulted that altruistic motive is main factor for remittances inflow to Pakistan. The study further analyzed that several factors as price changes, world economic situation and depreciation of home country exchange rate are responsible for increase in remittances and also examined rise in world interest rate and more education are responsible for decrease in remittances inflow to Pakistan.

Qayum et al. (2008), examined impact of remittances on economic growth and poverty. They used the annual data of Pakistan from 1973 to 2007. ARDL approach is adopted for this study just to investigate remittances with economic growth and poverty. This study also resulted as others, remittances have positive and significant linkage with economic growth and remittances are also accountable in cutback of poverty in Pakistan

## 3. Model and Methodology
Our main model is given below

$$Y_t = \propto_t + \beta_t Rem_t + \delta X_t + \mu_t \qquad (1)$$

Where " $\propto_t$ "is the intercept " $Y_t$ " is GDP growth, " $Rem_t$ " is remittances ratio to GDP and "$\delta$" is parameter that estimates on the matrix of control variables, "X" that includes (control variables), World GDP Growth, Government Consumption, Exchange Rate, Terms of Trade (TOT), Trade Openness, Financial Development and Private sector and Inflation ( Appendix 3).

We use generalized method of moments (GMM), Firstly we use GMM because there is endogeniety presence between variables in equations, literature indicates that if there is endogeniety problem present then OLS (ordinary Least Square) regression estimate will be biased and also inconsistent, secondly the problem of autocorrelation is presence in our equation due to imposition of time aggregation on variables we employ GMM methodology for estimation. Endogeneity can occur as a result of measurement error, autoregression with autocorrelated errors, simultaneity and omitted variables.

## 4. Results and Discussion
In the result table (Appendix 1) where remittances have positive and significant link with GDP growth. This positive relationship indicates that remittances contributing useful role in Pakistan's economy (Faini, 2002; Stark and Lucas,1998). Remittances have 5.4% share in Pakistan GDP from this figure it is obvious that importance of remittances cannot be neglected; remittances perform a role of insurance in developing countries as well as in Pakistan. Remittances has positively effect on domestic economies by the medium of current accounts financing it is also the key of remittance flows. Mainly remittances inflows to Pakistan by the migrant worker are based on altruistic motives. Financial Development is also positive and significant with Pakistan GDP growth that indicates improvement in financial sector also bring improvement in an economy. We employ credit to private sector (share to GDP) as proxy for financial development. Financial sector play essential and healthy role in any economy, for remittances transection financial sector play a role of medium, baking sector or other financial sector consider key of development for Pakistan.Inflation or hike in general level of prices are cogitate harm for an economy, our results signpost inflation is negative and significant with GDP growth. We employ inflation as proxy of monetary policy. Several studies on inflation and GDP have done by different researchers, but some studies show that there is positive relation with growth, according to them when inflation is in single digit (3, 4, and 8) that can lead an economy to boom, but majority researcher argue that inflation has always negative impact on GDP growth.Trade openness is positive and significant with GDP growth in case of Pakistan, the main reason to include this variable in our model is that openness (free trade without restriction) plays a crucial role any economy that leads an economy to specialization due to comparative advantage. Term of trade is basically unit value of export over unit value of import, in literature this variable use in model for social welfare indicator, our result indicates that there is negative relationship between Term of trade and GDP growth, actually Pakistan import are more than export and Pakistan export agricultural goods and import heavily and costly machinery so due to this trade deficit happened that prone for lessening in GDP in case of Pakistan.

So due to globalization all countries specially developing countries depends on other countries, we include world GDP growth just to observe is other countries can be responsible for GDP growth of Pakistan?, our results indicates that there is also positive relation with world GDP and Pakistan GDP. When economic condition of the rest world is good at that it will also influence on developing countries as in Pakistan and vice versa.Fiscal policy also essential for an economy to boost, we use government expenditure as a proxy of fiscal policy. It has positive and significant impact on GDP but in our case it is negative the reason can be due to high rate of subsidies and high rate of taxes, when high inflation prevails in an economy there also government expenditure impact negatively on GDP growth.Exchange rate is positive in our study that designate exchange rate increases at that time export of a country increases and import decreases that are responsible to positive impact on economy as in case of Pakistan. When exchange rate increases at that time it also have positive effects on remittances inflow.

To investigate the behaviors of remittances inflow we formulate equation which is given below.

$$REM_{PAK} = \alpha + GDP_{PAK} + GDP_{WORLD} \qquad (2)$$

In equation (2) remittances of Pakistan is dependent variable and GDP of Pakistan and world is the independent variable, the main purpose of this equation to evaluate the remittances behavior inflow to Pakistan. The above equation is estimated by GMM and results (Appendix 2) indicates that remittances inflow to Pakistan has countercyclical behavior (Mazhar and Junaid, 2013), so as GDP growth of Pakistan declines at the same time remittances inflow to Pakistan increases, and remittances inflow to Pakistan has positive and significant relationship with world GDP as it increases at that time remittance inflow to developing countries increases. Remittances to Pakistan have increased with high speed at the time when Pakistan facing recession or facing high economic or natural shocks. In 2010 Pakistan receive highest amount in term of remittances due to compensating natural disaster (flood 2010). Hence we can conclude that remittances have countercyclical approach in term of Pakistan.

## 5. Conclusion and Policy Implication

Worker's remittances play an essential and significant role in developing economies, it is also considering second largest source of financial inflow after FDI. The importance of worker's remittances increases with the passage of time in remittances recipients countries.According to World Bank, Pakistan is the 7th largest remittances recipients economy, remittances has positive impact on Pakistan's economy.Our main objective of the study which we have to explore is that the remittances has positive for Pakistan's GDP. Generalized method of moments (GMM) employed to estimate our main two equations the central rationality for employing GMM is that it solve the problems of endogeneity and autocorrelation. The study finds that there is positive impact of worker's remittances on economy.

The main policies suggestion derives from our study are (a) as remittances inflow to Pakistan are countercyclical, Government authorities of Pakistan should improve GDP without minimize remittances inflow. And second Pakistan should export manpower in developed countries that has positive and significant effect on Pakistan economy. And last policy suggestion is that Round about 74% of Pakistani working in two countries i.e. Saudi Arabia and U.A.E, so Pakistani government should established facilitation center in these two countries, solve the problems and also encourage them to saving money and transection via financial institutions and issue the remittances cards to every migrant Pakistan.

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**Appendix 1. Remittances and GDP growth**

|  | *GDP Growth* |
|---|---|
| Remittances | 0.28[*] |
|  | (0.0020) |
| Financial development | 0.13[**] |
|  | (0.06) |
| inflation | -0.08[*] |
|  | (0.015) |
| Trade openness | 0.09[*] |
|  | (0.05) |
| Term of Trade | -2.98[*] |
|  | (0.006) |
| World GDP Growth | 0.020[***] |
|  | (0.200) |
| Government Expenditure | -1.10[*] |
|  | (0.0001) |
| Exchange Rate | 0.01 |
|  | (0.61) |
| C | 6.65 |
| R-square | 0.40 |
| j-statistics | 0.002 |
| Durbin Watson | 2.28 |
| Observations | 39 |

P values are given in parentheses, [*],[**],[***] are significant at 1%, 5% and 10% respectively

**Appendix 2. Cyclical behavior of remittances inflow to Pakistan**

|  | *Remittances* |  |
|---|---|---|
| $GDP_{PAKISTAN}$ | -2.94 | (0.0000) |
| $GDP_{WORLD}$ | 2.41 | (0.002) |
| R-square | 0.79 |  |
| J- statistics | 0.0023 |  |
| Observation | 39 |  |

**Appendix 3. Variables and their sources**

| Variable | Variable construction | Source |
|---|---|---|
| Remittances | Remittances (ratio to GDP) | SBP[1] |
| Financial Development | Credit to private sector (ratio to GDP | WDI[3] |
| Inflation | Index rate(2005) | WDI[3] |
| World growth | Annual growth rate | WDI |
| Terms of trade | Unit value of export/ unit value of import | IFS[2] |
| Trade openness | {(Export+impot) /GDP * 100} | IFS |
| Government consumption | Total Government consumption (ratio to | IFS |
| Real effective exchange rate | Exchange rate (PAK)*[CPI(U.S)/CPI(PAK)] | IFS |
| GDP growth | Annual growth rate | IFS |

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[1] State Bank of Pakistan
[2] International Financial Statistics
[3] World development indices