

## **The Socio-economic Determinants of Remittances in Pakistan: Evidence from District Bannu**

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### **Abstract**

*Foreign Remittances have gained great importance in the economies of developing countries including Pakistan. At present, remittances have become a major source of revenue for Pakistan. There has been enough work done in the past on the macroeconomic determinants of remittances however, microeconomic determinants were either rare discussed or then not studies with accurate statistical estimation. To bridge up the gap, the present study has attempted to explore the socio-economic determinants of remittances by utilizing data of 10 different villages of district Bannu to establish a relationship between foreign remittances and their socio-economic determinants. All the diagnostic tests were performed. The OLS estimation results revealed that all the factors (except property at home) i.e. earning abroad, experience abroad, number of dependents and education of emigrants in Pakistan have positive and significant impact on the inflow of remittances to their households.*

**Keywords:** remittances, socio-economic determinants, OLS, Bannu, Pakistan

### **Introduction:**

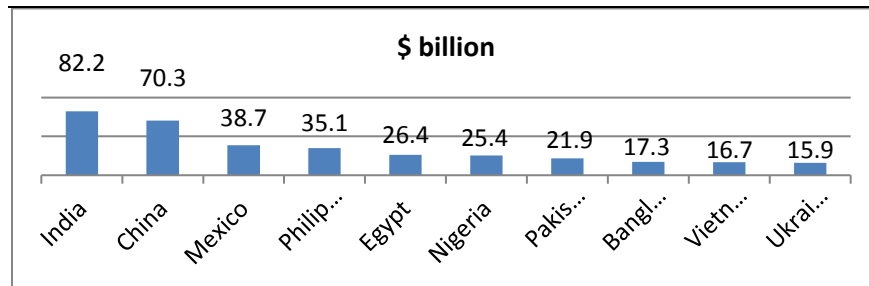
Foreign remittances are the personal transfers by Diaspora from the host countries to the home countries. These are the unrequited and most handsome receipts. For the last few decades, Pakistan has gained enough foreign exchange from exported labour sent to the well-off countries (BOEM, 2020). Remittances have played an essential part in keeping the economy of Pakistan at growth and have fulfilled its dire need for foreign exchange. Socio-economic determinants compel the emigrants to remit money to their families in home countries, e.g. the experience abroad, number of dependents, education, earnings abroad and property at home. Remittances have not only great impacts on the major economic variables such as the balance of payments, debt problem, and capital formation but also have great impacts on the socio-economic conditions such as households' consumption, children's education and reduction in infant mortality on the recipient countries (Arif, 2009). The reallocation of massive labour from agricultural area to the other countries reduces the local unemployment and enhances the rural incomes and promotes the rural sector's growth (Orrenius & Zavodny, 2009). Remittances help to breach the brutal circle of paucity, boost income level, ease liquidity

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hardships, raise life pattern and help in educating the contemporary values of the community (Bilquees & Hamid, 1981). Remittances are the leading and constant source of inflow to various developing countries, which have now overcome the Foreign Direct Investment and Official Development Assistance. Out of the total remittances i.e. \$689 billion, an amount of \$528 billion was transferred to developing countries of the world. Among the top beneficiary countries of the world, Pakistan is at 7<sup>th</sup> position with the amount of \$21.90 billion. The transfer of remittances' grants supports not only to the financial sector of the beneficiary country but also to the transferring country too. The following graph portrays the remittances' profile of the top recipient countries:



Source: World Bank, 2019

*Statement of the Problem*

Though, there is study on the determinants of remittances in Pakistan however, still there is lack of study on primary data and their assessment especially that of the migration bound areas like district Bannu. Hecksman (1976) and Agarwal and Horowitz (2002) utilized Tobit Regression Model for linear regression analysis of the determinants of remittances. These studies have no doubt contributed to the impact assessment of determinants of remittances; however, still there is still a cushion for improved statistical analysis of the impacts with more precision. The previous studies are mostly based on surveys which don't provide the emigrants' based in-depth studies. This study tried to fill this gap by collecting and assessing the primary data from the study area. As District Bannu is a migration bound area however, no such study has yet been conducted hence, there was a way for study on this area. Moreover, an effort has been made to furnish some improved commendations for enhancing the flow of remittances. The OLS estimation technique with the help of EViews was utilized to provide more accurate results for the impact assessment and better interpretations.

### Literature Review

In this study, various theories and past work done on the determinants of remittances have been reviewed for authentication and way forward. Nishat and Bilgrami (1993) discussed the motives and strengths of remittances received from emigrants from the Middle East and found that the motives were pure altruism and self-interest. The statistical results for income, stay abroad and number of dependents of the emigrants and were positive and significant. Arif (1999) examined the emigrants' income abroad, remitting behaviour and saving as well as investment behavior of their households and found positive statistical results. Koksai (2006) stated the emigrants' own drives, stay abroad; income level, family's economic status, education, skill, matrimonial status, dependents and family's economic background also influence the inflow of remittances. The Theory of Pure Altruism articulates that due to sincere concern and responsibility, the emigrants remit money to their households to safeguard their interests by providing additional income (Lucas and Stark, 1985). The Theory of Self Interest describes that humans are inspired by personal benefits. It confesses that emigrants send money to their families for the purpose of self-benefits, self-pleasure and to invest in businesses and real estate in the home country (Vargas-Silva and Huang, 2006).

### Data and Methodology:

The present research attempts to ascertain the association between remittances and their determinants in the study area i.e. district Bannu. With the total area of 1227 km<sup>2</sup> and population of 11,67,892 (DCR, 2017), Bannu is one of the historical districts of Pakistan having huge number of emigrants i.e. 138,676 (BEOE, 2020) and therefore, the area was selected for research. As the emigration is mostly from the rural areas of Bannu, therefore, a catalog of the whole villages of district Bannu was collected out of which 10 sample villages were chosen arbitrarily. Those emigrants who stayed abroad for 3 or more years were chosen ranging from 20-28 emigrants with an average of 24. Thus, a list of 240 households chosen as a sample universe was organized by utilizing Lottery Method for simple random sampling. Similarly, the proportionate allocation method was utilized to assign sample size to various sampled villages. An interview schedule was designed to obtain the relevant information. For the allocation of sample size to diverse sampled villages, the following formula was used.

$n_i = nN_i / N$  where,  $n_i$  = Sample size in the  $i^{\text{th}}$  village,  $n$  = Sample size (240)  
 $N_i$  = Total number of emigrants' households in the  $i^{\text{th}}$  village  
 $N$  = Total number of emigrants' households in the sample area

*Education Features of the Emigrants*

Out of the total emigrants, 20(8.33%) emigrants were illiterate while the remaining 216(90%) emigrants were literate. 70(29.17%) were educated up to Primary and Middle standard, 96(40%) were educated up to Matric standard, 44(18.33%) were up to Intermediate level, and 10(4.17%) were educated up to Master level as shown in the table.

*Education Features of the Emigrants*

Complete data regarding educational features have been depicted below:

Age Group	Sample Size of Households # 240					
	Illiterate	If literate then Education Standard				
		1	2	3	4	
Years	(f.) (%)	(f.) (%)	(f.) (%)	(f.) (%)	(f.) (%)	(f.) (%)
21-30	96 (40)	03 (1.25)	50 (20.833)	45 (18.75)	20 (8.33)	7 (2.916)
31-40	72 (30)	05 (2.083)	30 (12.50)	25 (10.416)	10 (4.416)	3 (1.25)
41-50	48 (20)	05 (2.083)	13 (5.416)	10 (4.167)	----	---
51-60	20 (8)	05 (2.083)	5 (2.083)	----	----	---
61+	4 (1.67)	02 (0.833)	2 (0.83)	----	---	---
Total	240 (100)	20 (8.33)	70 (29.17)	96 (40)	44 (18.33)	10 (4.17)

1= Primary & Middle, 2= Matric, 3=Inter, 4=Master,

Source: Field Survey (2015)

*The Emigrants' Features of Destination, Experience and Occupation*

Presently, about 138,676 Diaspora from District Bannu are working abroad in the world (BEOE, Feb 2020) as given below:

Category # 1 Countries of Destination Name of the Country	Category # 2 Experience of the Emigrants		Category # 3 Occupational Change of the Emigrants			
	f. (%)	Period of Emigration	f. (%)	Occupation	Pre- Emig: f. (%)	Post- Emig: f. (%)
Middle East	225 (93.75)	1973-1980	10 (4.17)	Farming	60 (25)	00 (00)

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U. K	05	1981-1990	40	Labour	60	160	
	(2.08)		(16.67)		(25)	(66.67)	
Malaysia	03	1991-2000	90	Drivers /	20	50	
	(1.25)		(41.67)	Conductors	(8.33)	(20.83)	
Japan	02	2001-2009	100	Trade /	24	10	
	(0.83)		(37.5)	Business	(10)	(4.17)	
U.S. A	02	---	---	Others**	26	20	
	(0.83)				(10.83)	(8.33)	
Others*	03	---	---	Unemploye	45	00	
	(1.25)			d	(18.75)	(00.0)	
Total	240	---	240	---	240	240	
	(100)		(100)		(100)	(100)	

Others\* = Thailand, South Korea, China, Others\*\* = Mechanics, Electrician, Pipe Fitters, Masons, Tailoring, etc.

Source: Field Survey (2015)

#### *The income and property Features of the emigrants*

The post-migration income enhanced by 495%. On average, the pre-migration monthly income was Rs.7,620/- p.m. per head as compared to Rs.45,300/- p.m. per head abroad. The minimum wages, which an ordinary labour could earn abroad, were above Rs. 23,200/- per month. The range of average amount of remittances was Rs. 17,226/- per month per emigrant to Rs.71,485/- per month per emigrant of the income group of 68(28.33%) emigrants and 4(1.67%) emigrants respectively.

The study also revealed that majority of the emigrants hailed from poor class or lower middle class. The value of their property ranged from Rs. 10,00,000/- per emigrant to Rs. 33,00,000/- per emigrant. Property of the emigrants at home had inverse relationship with the inflow of remittances. The greater the property at home, the lesser was the inflow of remittances to the households though, the impact was insignificant.

The experience of the emigrants was calculated on the basis of their stay abroad. The range of experience was from 03-30 years with total of 1836 years. Thus, the mean length of stay abroad (of 240 emigrants) was counted as 7.65 years. The experience abroad has positive consequence on remittances as the more the experience abroad the more the receipts of remittances.

Income Group	Inc: at home per Month		Inc: Abroad Per Month		M.R.	A.A. R	Ex : Yr	Av: Pty at Home Rs (000)
	Emig g	Av: Am : Rs.	Emig g	Av: Am: Rs.	Av: Am: Rs.	Av: Am: Rs.		
			f. (%)					
	f. (%)							

**The Socio-economic Determinants of Remittances in Pakistan**

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No	45	---	---	---	---	---	---	---
Income	(18.5)							
5000-10000	125	5670	---	---	---	---	---	---
	(52.8)	(708750)						
10001-15000	36	12500	---	---	---	---	---	---
	(15)	(450000)						
15001-20000	24	17500	---	---	---	---	---	---
	(10)	(420000)						
20001-30000	10	25000	68	26100	17226	20671	3	100
	(4.17)	(250000)	(28.3)	(1774800)		2		
30001-40000	---	---	55	34800	22620	27144	5	115
			(22.9)	(1914000)		0		
40001-50000	---	---	43	46400	29696	35635	7	135
			(17.9)	(1995200)		2		
50001-60000	---	---	29	55100	34713	41655	10	155
			(12.0)	(1597900)		6		
60001-70000	---	---	18	66700	41354	49624	12	180
			(7.5)	(1200600)		8		
70001-80000	---	---	11	75400	45994	55192	15	210
			(4.58)	(829400)		8		
80001-90000	---	---	7	84100	50460	60552	20	245
			(2.91)	(588700)		0		
90001-100000	---	---	5	95700	56463	67755	25	285
			(2.08)	(478500)		6		
100000-1000001+			4	123250	71485	85782	30	330
			(1.67)	(493000)		0		
Total	240	60670	240	607550	37001	44401	---	---
	(100)	(182875)	(100)	(1087210)	1	32		
		0)		0)				

Average Monthly Income of Emigrants (Pre-Migration) = Rs. 7620/- per month per emigrant (Rs. 1828750/60670=7620)

Average Monthly Income of Emigrants (Post-Migration) = Rs. 45300/- per month per emigrant (Rs. 10872100/240=45300)

Percentage Increase in income of the emigrants = 494.488% (Say 495%), {45300-7620/7620\*100=494.49% }

Range of Propensity to Remit = 0.58 - 0.66

Average Propensity to Remit = 0.62 per emigrant

Mean Duration of Stay = 7.65 years per emigrant (1836 years/240 emigrants)

Inc: income, Emig: Emigrants, Av. Am: Average Amount, M.R. = Monthly Remittances, Av: Rem: = Average Remittances, Ex: = Experience Yrs, Years, Pty, Pty= Property, () = Amount in parenthesis shows total amount earned by the emigrants, 1 USD = 100 PKR = 29 Dh.

### *The Model*

This study took into account those factors which were most influential i.e. earnings abroad, experience abroad, number of dependents in Pakistan, education in Pakistan and property at home. The regression model comes out to:

$$R_{EM} = r (E_A, E_{XP}, D_{EP}, E_{DU}, P_{ty})$$

Where  $R_{EM}$  indicates the quantity of remittances to the emigrant's households,  $E_A$  is monthly earnings abroad in rupees (PKR),  $E_{XP}$  shows experience abroad in years,  $D_{EP}$  indicates the number of dependents,  $E_{DU}$  is the years of education in Pakistan and  $P_{ty}$  is the emigrants' property at home. The model was assessed by utilizing Ordinary Least Square (OLS) technique of assessment. The refined description of the above remittances' equation is given as follows:

$$R_{EM} = \beta_1 + \beta_2 E_A + \beta_3 E_{XP} + \beta_4 D_{EP} + \beta_5 E_{DU} + \beta_6 P_{ty} + e$$

The estimation and empirical results of this remittance equation model have been discussed below:

The primary data collected from the research area during the research time 2015 has been used for assessment. The sample size is 240 emigrants' households. The model utilized in this research was borrowed from Kandil & Metwally (1990), Nishat & Bilgrami (1993) and Arif (1999). Before the estimation results, various diagnostic tests were performed to testify validity and applicability of the data. For this purpose, the Augmented Dickey-Fuller (ADF) Unit Root test was performed to test stationarity of the data. The result of the ADF unit root test showed that all the variables were non-stationary at level which was made stationary after differencing at 1<sup>st</sup> difference. Similarly, the Autocorrelation was checked by Breusch-Godfrey test wherein it was concluded that there was no serial correlation in the series. The assessment of LM statistics and F-statistics are not high while the p-value i.e. 0.1192 is greater than 5% for a 95% confidence interval which recommends the acceptance of null

hypothesis of no serial correlation. The normality assumption of the error term was verified by Jarque-Bera test statistics. The p-value of Jarque-Bera test statistics was 0.223 which was greater than the 0.05 critical value which revealed that the time series data were normally distributed. Thus, the null hypothesis was accepted. The chi-squared p-value of the White heteroskedasticity test was 0.9762 which was greater than 0.05. Thus, the null hypothesis that the residuals were not heteroskedastic was accepted hence, no heteroskedasticity which meant the error terms of all variables had equal variances after first differencing of data series as given below:

Result of ADF Unit Root Test

Variable	t-values	p-values Level	Stationarity	Order of Integration
D(E <sub>A</sub> )	-6.432262	0.0000	1 <sup>st</sup> Diff:	I (1)
D(E <sub>XP</sub> )	-6.303078	0.0000	1 <sup>st</sup> Diff:	I (1)
D(D <sub>EP</sub> )	-6.004626	0.0000	1 <sup>st</sup> Diff:	I (1)
D(E <sub>DU</sub> )	-7.026847	0.0000	1 <sup>st</sup> Diff:	I (1)
D(P <sub>ty</sub> )	-7.210134	0.0000	1 <sup>st</sup> Diff:	I (1)

\*Mackinnon (1996) one sided p-values. Source: Author's Calculations

*Auto Correlation Detection Test for Overall Model Breusch-Godfrey Serial Correlation LM Test for Overall Model*

F-Statistics	1.882395	Prob. F (2,36)	0.1669
Obs* R-Squared	4.254029	Prob. Chi-Squared (2)	0.1192

Source: Author's Calculations

*Normality Test for Overall Model: Jarque-Bera Test of Normality for Overall Model*

Series	Residuals
Sample	2015
Observations	240
Mean	7.58e-14
Median	-113.8527
Maximum	2379.687
Minimum	-2042.455
Std. Dev.	902.3849
Skewness	0.366595
Kurtosis	3.980178
Jerque-Berra	2.996634
Probability	0.223506

Source: Author's Calculations



*Heteroskedasticity Test (White Test) Result for Overall Model*

F-statistic	0.176861	Prob. F (6,40)	0.9816
Obs* R-Squared	1.214646	Prob. Chi-Squared (6)	0.9762
Scaled explained SS	9.055104	Prob. Chi-Squared (6)	0.1705

Source: Author's Calculations

After performing all these tests, the model was estimated with the help of OLS technique and the following estimation results were obtained:

*OLS Estimation Results for Overall Model*

The dependent variable was remittances ( $R_{EM}$ ) which was framed on the basis of income groups abroad. The lower and upper limits with class intervals were Rs. 20001-30000/- p.m. and Rs. 100001-110000/- p.m. respectively while it is Rs.240012-360000/- p.a. and Rs.1200001+/- p.a. respectively. For the above years, the data of the complete variables have been taken from the relevant households. The results have been given as follows:

Dependent Variable:  $D(R_{EM})$  Method: Least Squares

Explanatory Variable	Coefficient	t-Statistic
C	57.45644	1.656267 (0.0003)
D(E <sub>A</sub> )	0.650000	4.760000 (0.0000) *
D(E <sub>XP</sub> )	0.215814	4.623000 (0.0000) *
D(D <sub>EP</sub> )	0.223919	7.365563 (0.0000) *
D(E <sub>DU</sub> )	0.327969	4.571371 (0.0000) *
D(P <sub>ty</sub> )	-0.107000	3.380000 (0.0500) **
R <sup>2</sup>	0.997771	
F-statistics	21.26499	
Prob (F-Statistics)	(0.0000)	

Source: Author's Calculations

Figures in parentheses are t-ratios, (\*, \*\*) Significance level at 1% and 5% respectively. E<sub>A</sub>, E<sub>X</sub>, D<sub>EP</sub>, E<sub>DU</sub>, and P<sub>ty</sub> respectively stand for annual earnings abroad; experience abroad, No. of Dependents, years of Education and property at home. Taking into account the above results, the model given below has been framed:

$$R_{EM} = 1.88457 + 0.650000(E_A) + 0.215814(E_{XP}) + 0.223919(D_{EP}) + 0.327969(E_{DU}) + -0.107000(P_{ty})$$

The OLS method was used because the model was linear in parameters. The diagnostic tests such as stationarity, multicollinearity, normality and heteroskedasticity were clear as checked by their respective tests given in Gujrati (1995). The value of R<sup>2</sup> is 0.99, shows that these variables explain 99% variation in the remittances. The estimation results for income abroad were significantly positive. Its value showed that 1% increase in earnings abroad of the migrants caused 0.65% increase in the remittances and vice versa. On the basis of these results it was concluded

that annual earnings abroad have positive impact on remittances. The impact of experience has also positive effect on annual remittances. Its elasticity of 0.21 indicates that 1% increase in experience abroad led to 0.21% increase in remittances. It showed that the more years the migrants spend abroad, the more they remit money to their households. The impact of dependents at home ( $D_{EP}$ ), is positively significant. The results showed that 1% change in dependents caused 0.223% change in remittances. The coefficient of the  $E_{DU}$  variable indicated a positive impact on remittances as more education at home would fetch good job, good earnings and hence more remittances. The emigrants' property at home had negative though insignificant impact on the flow of remittances.

To sum up, remittances to the households depends on the characteristics of both the emigrants and their families. The emigrants who earn more abroad remit more to their households as also proved by the empirical results. All the factors except property at home have positive and significant impact on the inflow of remittances however; property at home has negative but insignificant impact on the remittance inflow. This is due to less interest and promising attitude of the emigrants as they consider their families stable and don't much rely upon remittances. As policy recommendations it is suggested that the need of the day is to have more study regarding the overall determinants of remittances. More focus on the betterment of the characteristics of both the emigrants and their households is required. The stock of knowledge and skill must be enhanced so that to enable emigrants to fetch more income and hence more remittances. Similarly, more education also enables the emigrants' households to utilize the remittances judiciously which will further motivate the emigrants to remit more. Better investment policies in the home country also induce the emigrants to remit more. The negative relationship of property at home and remittances can be made positive with better economic policies as this will encourage the households to utilize both their remittance income and non-remittance income for productive investment. The Bureau and Overseas Employment, Pakistan may provide proper guidance through proper liaison to the emigrants for better utilization of emigrants' experience abroad.

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