NEXUS BETWEEN REMITTANCES AND ECONOMIC GROWTH OF PAKISTAN: A COMPARATIVE ANALYSIS

Anum Hayat[1]
Lecturer/PhD Scholar
Department of Economics
Jinnah University for Women
Karachi - Pakistan
anum.hayat@juw.edu.pk

Dr. Saghir Pervaiz Ghauri
Professor at Department of Economics
Jinnah University for Women
Karachi - Pakistan
saghir.ghauri@juw.edu.pk

ABSTRACT:

Purpose:

This study is crucial because countries like Pakistan are facing the major problem of insufficient financial capital since they appear on the world map and they have to take help from other countries and financial organizations. Since Pakistan is badly trapped in this bubble and has not broken it since 1958 remittances can play a role in the eruption of this trap. After covid-19 outbreak and natural disasters like floods due to climate change, remittances became a more essential financial inflow for developing nations like Pakistan. Consequently, this study intended to investigate the long-run association of country-wise remittances and total remittances with economic growth as compared to FDI, ODA, and public debt in Pakistan.

This Paper is the part from Ph.D. Dissertation of Anum Hayat.

Design/Data/Methodology:

To achieve the purpose of the study, time series annual data of country-wise remittances, total remittances, foreign direct investment (FDI) official development assistance (ODA), public debt, and economic growth (GDP) from 1981 to 2023 has been used. Furthermore, this study has been divided in to two models; model 1 is about the association of country-wise remittances inflow with economic growth while model 2 is about association of total remittances as compare to FDI, official development assistance and public debt with economic growth. To check the cointegration in the models ARDL model has been used because it is more feasible for small time series data but before this prerequisite of this test ADF and PP unit

[1] Corresponding author.

root test has been used to check the level of integration for the stationarity of the series in the models. Finally, Granger causality test has been applied to check the direct relationship among the variables.

Findings

This study found that there is an existence of long run cointegration in both the models. The ARDL analysis of model 1 indicated that remittances from UK only has positive impact on GDP of Pakistan in the long as well as brief period of time while, GCC and other selected countries have statistically significant and negative impact on GDP. However, remittances from USA and EU has insignificant impact on growth of Pakistan in the long time period while in the short span only EU has significant but negative impact. Moreover, the values of coefficients specified that remittances from GCC are highly associated with GDP of Pakistan as compare to other economies. The results of ARDL model 2 indicate that in the long run ODA is positively related with economic growth however; in the short run it is associated at its first lag. Nevertheless, FDI is positively related with Pakistan's growth in the long and short period while public debt positively linked with progress of Pakistan's economy in the long term only. Conversely, association of total remittance with economic progress is statistically insignificant. Furthermore, the values of coefficients determined that official development assistance is highly related with growth of Pakistan's economy while, public debts and FDI associated with growth respectively. Likewise, Granger causality test also indicated that none of remittances from the selected host countries and foreign financial inflow granger causes the economic growth of Pakistan except GCC and USA as well as official development assistance. However, GDP does granger cause remittances, official development assistance and public debt of Pakistan accept remittances from UK and EU. Hence, according to ARDL and granger causality remittances from USA, UK, GCC and other countries have impact while total remittances have no impact on economic progress of Pakistan.

Policy implication:

This study suggested that in Pakistan remittances do not affect economic growth due to its non-productive use along with inefficient policies; therefore, policy maker should focus on diverting this financial source towards productive use along with implication of strict laws and regulation to avoid corruption and informal channels.

Novelty:

The novelty of this paper is the contribution to the literature regarding Pakistan, being a unique attempt to explore the host country-wise impact of the remittance's inflows on Pakistan's economic growth. Furthermore, the yearly time series data used in this analysis cover the most recent period (1981-2023).

JEL classification: F4 and O1

Keywords: Country-wise Remittances, Foreign financial inflows and economic growth.

1. INTRODUCTION:

This study is crucial because countries like Pakistan are facing major problem of insufficient financial capital since they appear on world map, and they have to take help from other countries and financial organizations like IMF and World Bank but Pakistan badly trapped in this bubble and could not break it since 1958 when Pakistan first time took loan from IMF. Pakistan's economy is still depended upon these loans and burdened with high interest rates and strict conditions imposed by them. Subsequently covid-19 outbreak and natural disasters like floods due to climate change it became more essential financial inflow for whole world as well as for Pakistan's economy. In this condition we need to focus on new sources of capital and finance like Remittances which is second largest source of capital after FDI and greater than official development assistance ODA moreover it is less volatile than other sources according to IMF while according to World bank it is on the pathway to the major source of capital in developing economies like Pakistan which help them to break this long term bubble around the economy which will allow growth and development of economy.

1.1 Global financial flow:

When many people consider of the global financial flow to developing countries, they concentrate on those that happen by companies, governments and monetary institutions namely, official development assistance, foreign direct investment and portfolio investment. However, since the late 1990s, worker remittances have surpassed ODA and portfolio investment, exceeding the magnitudes of FDI flows in last few years. According to the World Bank, global remittances are slow but remain resilient and are expected to increase by 1.1 per cent to US$ $840 billion in 2023, including US$ 528 billion to developing countries and they are projected to increase by 3.7 percent in 2019 to US$ 715 billion, including US$ 549 billion for developing nations while, remittances to lower income and middle income economies are slowed down to $ 656 billion in 2023 up by 1.4 % as compared to 8.0 in 2022 (Bank et al., 2023).

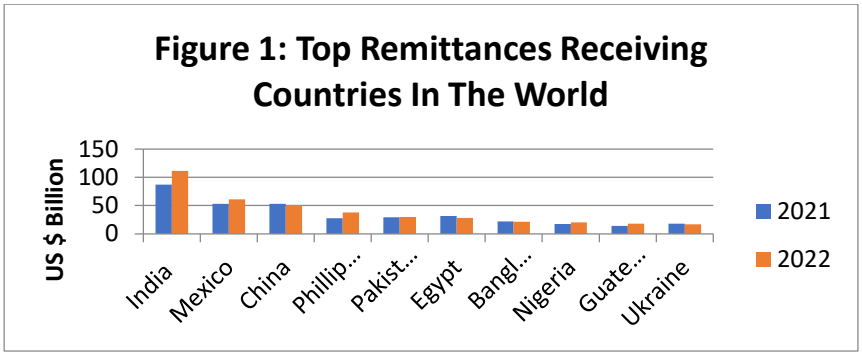
According to SBP report Pakistan has established a total of US$ 29.45 billion in global remittances in the previous fiscal year and $31.2 billion in fiscal year 2022 however in 2023 a decline is recorded first time in six years.

1.2 Remittances as a source of capital/finance in Pakistan:

Within global balance of payments BOP data collected by remittance receiving countries, remittances are calculated as the amount of two types of transactions: "workers 'remittances" and "workers' compensation." Workers 'remittance flows are cash and gifts sent to domestic households by immigrants living abroad. Worker remittances are transactions which do not need exchange and it is one-way transaction. However, Employee pay signifies the earnings of migrant workers who are in abroad and thus whose incomes are expected to transfer to their home country with the workers upon return relocation. For reporting purposes of the balance of payments, migrants are deemed "residents" after having been in the foreign country for one year or more, regardless of their immigration status. However, in the vast majority of cases the parties to the remittance dealings are families.

According to world bank report (Bank et al., 2023) and data top five remittances receiving

countries in terms of US dollars during the year 2022 are India, Mexico, China, Philippine, Pakistan, Egypt, Bangladesh, Nigeria, Guatemala, Ukraine respectively and most of them are Asian countries. The figure 1 below shows the economies receiving highest remittances in the world.



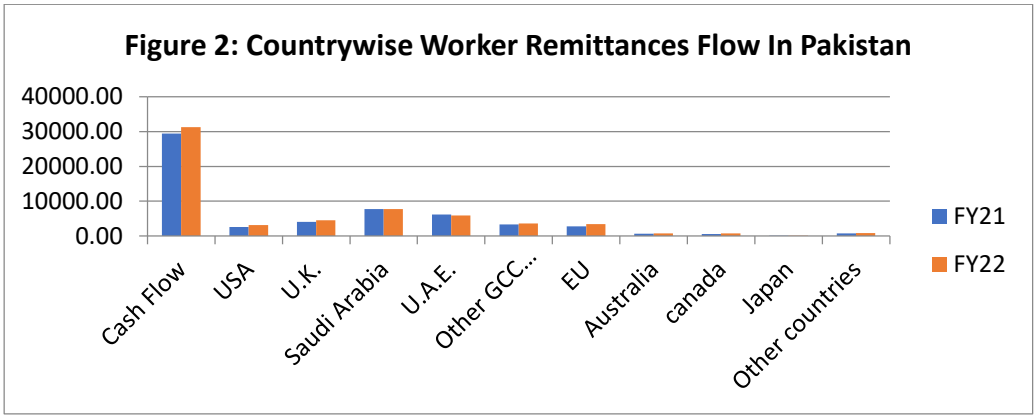
Source: Authors own

The flow of remittances to Pakistan slowed down and reached to $31.3 billion in 2022, apparently due to a slowed down of economic activities in high income and other host economies due to contractionary monetary policy, high inflation, fiscal expenditure during covid-19 and lower oil demand (State Bank of Pakistan). According to a report issued by the Bureau of Emigration and Overseas Employment (BE&OE), on average, more than 2000 Pakistani nationals everyday found employment in foreign countries in the year 2022 which is same in 2021. Many migrants lose their jobs in Gulf countries due to lack of confidence of employers on Pakistani employees during previous year. While current government is working for improvement of diplomatic relationship with Gulf countries particularly Saudi Arabia and UAE which are largest destination for Pakistani migrant workers these diplomatic efforts along with stability of oil prices resulted in positive impact on employment opportunities for Pakistanis.

1.3 Major host countries which are source of remittances in Pakistan:

Looking at country-by-country remittances in Pakistan, it is discovered that the utmost important amount of investment originates from the Gulf countries and Middle East. Here is a list of country-by-country remittances in descending order.

Saudi Arabia– UAE– UK– USA– other Gulf Cooperation Council GCC countries– European Union Canada, Australia, Japan and other countries such as Malaysia, Switzerland, Norway etc. contribute a significant amount altogether. Figure 2 below shows the total remittances cash flow and country wise worker remittances flow in Pakistan. Figure 2 also indicate that most of the remittances are coming from Saudi Arabia and UAE.



source: author's own figure

1.4 Influence of Remittances on Economic Growth:

Remittances effect positively on the economic progress of receiving country if it is used as productive source of investment along with financial inclusion. However, it can be negative if its flow is through the illegal channel along with corruption and not used as productive source of investment. Furthermore remittances create negative impact because more of families depending on remittances and using it for consumption purpose only and it also create inequality between those who are receiving remittances and those who are not in terms of labor force participation and standard of living (Sutradhar, 2020).

2. SIGNIFICANCE/CONTRIBUTION OF STUDY:

This study is crucial because countries like Pakistan are facing major problem of insufficient financial capital since they appear on world map and they have to take help from other countries and financial organizations like IMF and World Bank but Pakistan badly trapped in this bubble. Many studies have been conducted on the research topic internationally but no published research was found with context of host country-wise influence of remittances on GDP growth and economic development of Pakistan. This research made a sole contribution to the research regarding Pakistan, being a distinctive effort to explore the host country-wise impact of the remittance inflows on economic evolution of Pakistan. Furthermore, the yearly time series data used in this analysis cover the most recent period (1981-2023).

3. OBJECTIVES OF THE STUDY:

Pakistan is lower middle income and labor-intensive economy while availability of capital resources in Pakistan is highly in sufficient therefore the objectives of this study are:

- To explore the magnitude of influence of country-wise remittances inflows on Pakistan's economic growth and long run association between them.
- To explore the magnitude of influence of total remittances inflows as compare to FDI, ODA and public debt on economic growth of Pakistan.

4. LITERATURE REVIEW:

Several research analyses done previously about remittances and economic growth few of them are mentioned in this section below.

4.1 International studies:

In a recent research study (Lim et al., 2022) analyzed the influence of remittances, foreign on gross domestic product in the context of Philippine from 2005 to 2020 by applying regression model as a result they concluded that GDP has a significant and positive association with remittances as it increases, GDP also increases. Similarly, (Türedi & Yavuz, 2020) the purpose of their study is to define the form of nexus between foreign remittances and economic growth by presenting new evidence. In this sense, the Toda-Yamamoto and Bootstrap Toda-Yamamoto causality tests were carried out using time-series data from Turkey for the duration between 1974 and 2018. Empirical studies have shown evidence of a one-way, important affiliation between remittances and economic development. In view of the fact that remittances upsurge the welfare by growing consumption and stimulating economic growth by increasing access to credit opportunities in countries with a lack of savings and capital accumulation, it can be argued that remittances could play a noteworthy part in Turkey's growth process. Likewise, (Olayungbo & Quadri, 2019) examined the association among remittances, economic growth, and financial evolution in 20 Sub-Saharan African nations. The study concluded that foreign remittances and financial progress were proven to have significant long and short-term effects on economic growth. Lastly, it was discovered that there are unidirectional causal linkages from financial development to GDP as well as from GDP to remittances. In another study (Cismaș et al., 2019) examined the impact of worker remittances on the economy of CEE countries by applying correlation and causality. They concluded that remittances have insignificant influence on economic growth of Romania. However, Czech Republic and Lithuania have long and short term effect of remittances while Latvia Bulgaria, Estonia, Hungary and Latvia have only long-term association of remittances flows with economic growth. (Kanewar, 2018) explored how remittances effect the economic growth in the Republic of the Fiji Islands. He employed the ARDL time series approach on yearly data from 1980 to 2015 for this investigation. He found that the Fiji Islands' economy grew as a result of remittances in both the short and long terms. Moreover, (Morekwa et al., 2012) research about the association of remittances and economic growth of 36 countries panel data of Africa by applying ordinary least square and two-staged least square techniques and found that remittances appears to be compliment of financial development in growth of these countries but volatility in remittances negatively affect growth of these nations. In the same way (Le, 2009) empirically studied the role remittances in economic growth in a broad sample of developing countries for this reason, cross-section and panel data techniques have been used and found that in both cross-country and dynamic panel data have major effect of remittances on growth.

4.2 National studies:

One of the recent study by (Sutradhar, 2020) explored the link between remittances and GDP growth during 1977-2016 for four south Asian countries. For this purpose, a regression analysis Pooled OLS has been applied and concluded that remittances negatively affect the economic growth in Pakistan, Bangladesh and Srilanka. Nonetheless in India there is a positive influence of remittances on GDP growth. In another study (Tahir et al., 2020) explored about association of FDI, ODA and remittances with economic growth along with inflation and unemployment as control variables. They concluded that economic growth is positively influenced by all the foreign

inflows. Moreover, (Khan et al., 2019) in their study used the ARDL model to examine the influence of remittance on Pakistan's economy from 1976 to 2016. According to the analyzed data, remittance inflow, FDI and gross domestic saving all have a long-term positive impact on Pakistan's economic growth, whereas consumption and inflation have a long-term negative impact. The expansion of the financial sector and the education of the migrant's family serve as indicators of the beneficial impact of remittances on economic growth. Additionally, (Mustafa & Ali, 2018) explored the nexus between remittances and macroeconomic variables in Pakistan. For this purpose, they used baseline gravity model and Augmented Gravity Model and applied OLS estimations and causality test techniques. Finally, this study revealed that home countries 'economic performance has a strong and important effect on remittances, as expressed in the investment actions of migrants. In addition, the flow of remittances to Pakistan is primarily responds due to the macroeconomic variables of Pakistan. Therefore, remittance receipts have thus become an important factor in fostering Pakistan's economic development. Moreover, (Abbas et al., 2018) in their study investigated the impact of FDI and external debt on economic growth of Pakistan by applying ARDL model. As a result, they found that FDI and external debt have insignificant influence on economic growth in long term however, in the short run FDI has positive while external debt negatively influenced the economic growth. In addition, (Kumar, 2012) explored the role of remittances in Pakistan by applying bound testing approach (ARDL), ordinary least square OLS and granger causality to estimate effectiveness of relationship in short and long-run and the results showed that remittance inflows have a substantially positive association with economic growth in the long term and negative effects in short-term In another research analyses (Ahmed et al., 2011) discovered the effect of remittances on GDP growth of Pakistan. For this objective they applied bound test ARDL model for co integration, OLS estimation and VECM and explored that short and long-run remittances stand out to be statistically significant and positively co-integrated with economic growth for long as well as short time period.

5. DATA AND METHODOLOGY:

5.1 Data: Annual data of Remittances in aggregate and country-wise disaggregate form, Economic growth (GDP), foreign direct investment, official development assistance and public debt has been taken from State Bank of Pakistan, Economic survey of Pakistan and World Bank from 1981 to 2023. All the variables are transformed into logged values. **Table 1** below shows abbreviations of all the variables along with their measures and sources.

Table 1: Data Source

Series	Abbreviation	Measure	Source	Category of variable
Economic Growth	GDP	$	World Bank	Dependent Variable
Total Remittances	TREM	$	State Bank of Pakistan	Independent Variable
Remittances from USA	USA	$		Independent Variable
Remittances from UK	UK	$		Independent Variable
Remittances from GCC C	GCC	$		Independent Variable
Remittances from Europe	EU	$		Independent Variable

Remittances from Other c (Australia, Canada & Jap	AUS	$		Independent Variable
Foreign Direct Investment	FDI	$	World Bank	Independent Variable
Offical Development Assis	ODA	$	World Bank	Independent Variable
Public Debt	PDBT	$	Economic Su Pakistan	Independent

TABLE: 2 DESCRIPTIVE STATISTICS

	LGDP	LUSA	LUK	LEU	LTGCC	LOTH	LTREM	LFDI	LODA	LPDBT
Mean	4.60	-2.09	-2.36	-3.63	-0.48	-2.74	8.36	20.31	21.03	8.08
Median	4.41	-2.07	-2.39	-3.64	-0.47	-2.71	7.97	20.53	20.90	8.20
Maximum	5.93	-1.10	-1.85	-2.17	-0.18	-1.85	10.35	22.44	22.05	11.05
Minimum	3.34	-3.43	-2.96	-4.40	-0.86	-3.70	6.77	17.20	20.03	4.98
Std. Dev.	0.88	0.59	0.29	0.50	0.17	0.48	1.16	1.29	0.60	1.68
Skewness	0.12	-0.41	-0.22	1.38	-0.43	-0.36	0.33	-0.46	0.11	-0.05
Kurtosis	1.58	2.99	2.47	5.12	2.62	2.27	1.67	2.46	1.69	1.99
Jarque-Bera	3.72	1.19	0.87	21.74	1.61	1.88	3.95	2.06	3.16	1.84
Probability	0.16	0.55	0.65	0.00	0.45	0.39	0.14	0.36	0.21	0.40
Observations	43.00	43.00	43.00	43.00	43.00	43.00	43.00	43.00	43.00	43.00

The **table 2** explains the descriptive statistics of variables used in this study. We have annual data set from 1981 to 2023 with 43 observations. All variables are transformed into natural logarithm and the country wise remittances have been divided by total remittances. The results indicate the mean values of each variable which is simple average of 43 observations, median is middle most value after sorting the 43 observations of each variable, and standard deviation explains how far observations are from the average. On the other hand, the value skewness measures the degree of asymmetry of the series, in this study the value of skewness of GDP, total remittances and official development assistance is higher than 0 depicts positively skewed however, skewness of FDI and public debt is less than zero depicting negatively skewed. On the other hand, in country-wise remittances from USA and UK, GCC and other countries which include Australia, Canada and Japan are negatively skewed while remittances from European Union are positively skewed. Furthermore, kurtosis measures the peakness or flatness of the distribution of the sample, in this study the value of kurtosis for all variables is less than 3 which shows platykurtic in the series, except remittances from European Union which has value of kurtosis greater than 3 which means

it is leptokurtic. Additionally, Jarque-Bera test is used for testing the normality of each variable with Ho of series to be normally distributed, since the Jarque-Bera test's p-value is greater than 5% level of confidence interval for all series except European Union therefore, all the variables of the study except European Union are normally distributed.

5.2 Econometrics Techniques: To achieve the objectives of this study ARDL cointegration test has been applied because in this study there is small sample size therefore, using ARDL is more feasible. Firstly, a pre-requisite of unit root tests of each series has been fulfilled by applying Augmented Dickey Fuller and Phillip Perron tests to determine stationarity of the series. Secondly to find the existence of cointegration in the models ARDL model has been applied along with diagnostics and stability tests of these models. Finally, Granger causality test has been applied to investigate the direct relationship among the variables.

6. HYPOTHESIS:

H1: There is a statistically significant cointegration between country-wise remittances and economic growth.

H2: There is a statistically significant cointegration between total remittances and economic growth as compared to other foreign financial inflows.

7. RESULTS WITH DISCUSSION:

Table 3: ADF and PP Unit Root Test

Variables	p-value of Test I	p-value of P Perron T I(1)	ADF T P-value	Phillip Perr P-value
GDP	0.29	0.32	0.00	0.00
TREM	0.73	0.84	0.00	0.00
USA	0.34	0.34	0.00	0.00
UK	0.61	0.61	0.00	0.00
TGCC	0.46	0.38	0.00	0.00
EU	1.00	1.00	0.00	0.00
OTH	0.33	0.23	0.00	0.00
FDI	0.71	0.58	0.00	0.00
ODA	0.31	0.49	0.00	0.00
PDBT	0.88	0.87	0.00	0.00
Since series with p-value of ADF and P.P test of all the series are greater th therefore H0 has been accepted for all the series at 5% or 10 % significance.				

Augmented Dickey Fuller and Phillip Perron tests are used as pre requisite of ARDL model to identify level of integration of series either any series is stationary at 2nd difference because ARDL model cannot be applied if any series of the model is stationary at 2nd difference. **Table 3** depict the results of ADF and P.P test which specified that all the selected series are stationary at 1st

Difference.

7.1 Econometrics Models of the study:

The Autoregressive Distributed Lag and Error Correction Model have been applied in this study to study the cointegration among economic growth, aggregate and disaggregate remittances as well other financial inflows like FDI, public debt and official development assistance. The ARDL and ECM models are widely used econometric techniques for analyzing the relationships between variables when the data are non-stationary, which is a common characteristic of macroeconomic time series data.

The ARDL and ECM models used in this study for investigating country-wise remittances association with economic growth have the following general form:

Model 1:

$$lgdp_t = c + \beta_1 lUSA_{t-1} + \beta_2 lUK_{t-1} + \beta_3 lEU_{t-1} + \beta_4 lTGCC_{t-1} + \beta_5 lOTH_{t-1} + \sum \beta_{11} dlUSA_{t-1} + \sum \beta_{22} dlUK_{t-1} + \sum \beta_{33} dlEU_{t-1} + \sum \beta_{44} dlTGCC_{t-1} + \sum \beta_{55} dlOTH_{t-1} + \lambda ECT_{t-1} + \varepsilon_t$$

Model 2:

The ARDL and ECM models used in this study for investigating total remittances association with economic growth have the following general form:

$$lgdp_t = c + \beta_1 lTREM_{t-1} + \beta_2 lFDI_{t-1} + \beta_3 lODA_{t-1} + \beta_4 lPDBT_{t-1} + \sum \beta_{11} dlTREM_{t-1} + \sum \beta_{22} dlFDI_{t-1} + \sum \beta_{33} dlODA_{t-1} + \sum \beta_{44} dlPDBT_{t-1} + \lambda ECT_{t-1} + \varepsilon_t$$

7.2 ARDL Bound Test:

Table 4: ARDL Bound Test

Model	Lag	ARDL Bound stats)	Confidence In	Lower Lim	Upper Lim	Cointegration
LGDP= c + LUSA +L +LEU +TLGCC +LOT	3,3	2.30	10%	2.26	3.35	Inconclusive
			5%	2.62	3.79	
			2.50%	2.96	4.18	
			1%	3.41	4.68	
LGDP = c +LTREM + +LODA +LPDBT	2,1	3.41	10%	2.45	3.52	Inconclusive
			5%	2.86	4.01	
			2.50%	3.25	4.49	
			1%	3.74	5.06	

H0= No longrun relationships exist
confidence interval at 5% or 10%

The result shown in **table 4** represented two models, first model depict impact of country-wise remittances and second model depict impact of total remittances as compare to other foreign financial inflows. As result ARDL bound test of both the model 1 and model 2 indicated that that value of F-stats is between the lower and upper limit at 5% significance level hence existence of cointegration is inconclusive in bound test.

7.3 ARDL Cointegrating and Long Run Form:

7.3.1 Model 1:

Table 5: ARDL Cointegrating And Long Run Form (3,0,0,3,3,3)

ARDL Short-run Coefficients

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(LGDP(-1))	-0.395	0.140	-2.83	0.010
D(LGDP(-2))	-0.391	0.145	-2.69	0.013
D(LUSA)	-0.062	0.053	-1.16	0.256
D(LUK)	0.118 *	0.064	1.83	0.080
D(LTGCC)	-0.089	0.214	-0.41	0.681
D(LTGCC(-1))	0.411 *	0.198	2.07	0.050
D(LTGCC(-2))	0.574	0.166	3.45	0.002
D(LEU)	-0.050	0.045	-1.09	0.284
D(LEU(-1))	0.063	0.057	1.09	0.285
D(LEU(-2))	-0.151	0.053	-2.84	0.009
D(LOTH)	0.045	0.052	0.86	0.395
D(LOTH(-1))	-0.002	0.078	-0.02	0.984
D(LOTH(-2))	0.230	0.067	3.44	0.002
CointEq(-1)	-0.092	0.030	-3.11	0.005

Cointeq = LGDP - (-0.6761*LUSA + 1.2824*LUK -9.9184*LTGCC + 0.2017*LEU -1.9533*LOTH -1.2090)

ARDL Long Run Coefficients

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LUSA	-0.676	0.594	-1.13	0.267
LUK	1.282	0.523	2.45	0.023
LTGCC	-9.918	2.561	-3.87	0.001
LEU	0.202	0.397	0.50	0.617
LOTH	-1.953	0.772	-2.52	0.019
C	-1.209	4.729	-0.25	0.801

, **, indicates the level of significance at 1%, 5%,and 10% respectively.**

Since the bound test indicated long-run association between economic growth and country-wise remittances this study considered short run as well as long run ARDL. The result of ARDL **(3,0,0,3,3,3)** model are shown in **table 5** which is indicating that remittances from UK has positive impact on GDP of Pakistan in the long as well as brief period of time while, GCC and other selected countries have statistically significant and negative impact on GDP in both the short at 1st and 2nd

lag and long run. However, remittances from USA and EU has insignificant impact on growth of Pakistan in the long time period while in the short span only EU has negative impact at second lag. Moreover, the values of coefficients specified that remittances from GCC are highly associated with GDP of Pakistan as compare to other economies. Therefore, hypothesis H1 has been partially accepted for GCC countries, UK and other countries at 5 or 10% level of significance.

Furthermore, coefficient of ECM shows the speed of adjustment toward the equilibrium while its sign shows the convergence if negative or divergence if positive. Since the coefficient of ECM of model 1 is -0.092 which indicated the convergence towards the equilibrium with the 1% speed of adjustment at 5% level of significance.

This study indicated that remittances from UK are the only inflow that has positive impact on economic growth of Pakistan which means that remittances inflows from UK are used in investments and productivity. Conversely, remittances from European Union, TGCC and other countries have negative impact on the economic growth. Furthermore, remittances inflows from GCC countries are higher than other host countries still have negative or insignificant impact on economic growth of Pakistan in long run which means that inflow is through the illegal channel along with corruption and not used as productive source of investment. Additionally, more of families depending on remittances from these host countries are using it for consumption purpose only. Furthermore, it also create inequality between those who are receiving remittances and those who are not in terms of labor force participation which leads to decline in economic growth or have insignificant impact on economic growth (Sutradhar, 2020).

Residual Diagnostics:

Residual diagnostics of ARDL model are crucial to identify the major issues of the econometric model. For this purpose, three major statistical residual diagnostics tests have been applied and mentioned below.

Table 6: Heteroskedasticity Test: ARCH			
F-statistic	0.199	**P-value**	0.820
Obs*R-squared	0.455	**P-value (chi sq.)**	0.800
H0: There is no heteroscedasticity At 5% level of confidence.			

ARCH test has been applied to identify the issue of heteroskedasticity. The results shown in **table 6** indicated that observed R-square's p-value is more than 0.05 therefore the H0 has been acknowledged at 5% level of significance. Hence, the variance is constant in this model.

Table 7: Breusch-Godfrey Serial Correlation LM T			
F-statistic		**P-value**	
Obs*R-squared		**P-value (chi sq.)**	
H0: There is no autocorrelation At 5% level of confidence.			

Likewise, according to the result shown in **table 7** it is indicated that observed R-square's p-value

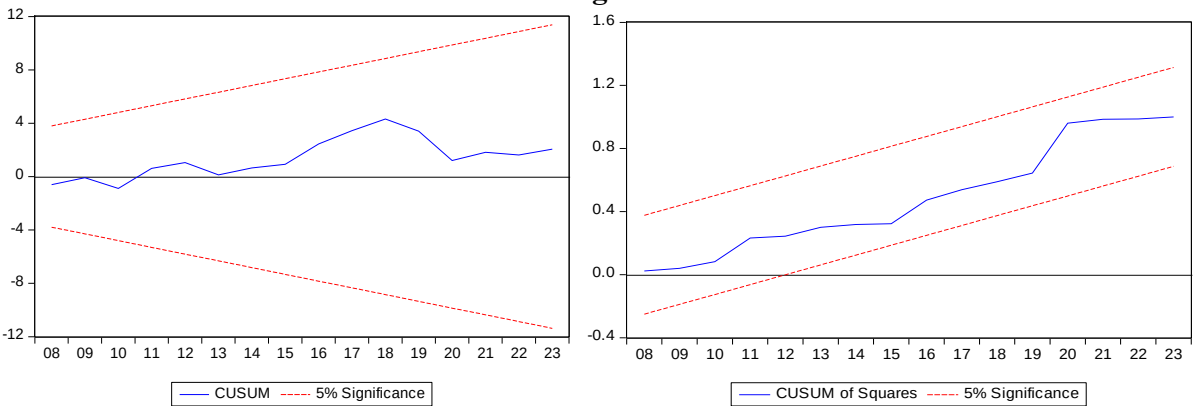
is higher than 5% therefore, the null hypothesis of no autocorrelation has been accepted at 5% level of confidence interval.

Table 8: Histogram Normality Test			
Jarque-Bera	0.483	**P-value**	0.785
H0: There is a normality At 5% level of confidence.			

Furthermore, outcomes of histogram normality test shown in **table 8** indicated that p-value of jarque-bera is higher than 5% therefore, the null hypothesis of existence of normality has been accepted at 5% level of significance.

Stability Diagnostics Tests: CUSUM and CUSUM of Squares Test

Figure: 3



Above figure 3 shows the results of CUSUM and CUSUM of Squares Test which has been used to identify the stability of ARDL model. The outcomes of both the stability tests indicated that throughout the selected period, values of both tests are between the upper and lower bands of 5% significance indicating robustness of stability in the model 1.

7.3.2 Model 2:

Table 9: ARDL (1, 0, 0, 2, 2)				
Short-run				
Series	**Coefficient**	**Standard E**	**t-Stats**	**P-value**
D(LTREM)	0.032	0.03	1.03	0.309
D(LFDI)	0.053*	0.01	2.86	0.007
D(LODA)	-0.01	0.03	-0.5	0.606
D(LODA(-1))	-0.096*	0.03	-2.8	0.009
D(LPDBT)	0.006	0.04	0.13	0.892
D(LPDBT(-1)	-0.06	0.04	-1.5	0.136
CointEq(-1)	**-0.362***	**0.10**	**-3.4**	**0.002**
Cointeq=LGDP-(0.0886*LTREM+ 0.1471*LFDI + 0.3452*LODA + 0.2900*LP 8.5498)				
Long Run				

Series	Coefficient	Standard E	t-Stats	P-value
LTREM	0.089	0.07	1.26	0.217
LFDI	0.147**	0.04	3.61	0.001
LODA	0.345*	0.16	2.03	0.050
LPDBT	0.290**	0.04	7.00	0.000
C	-8.550	2.91	-2.93	0.006
, **, shows the level of confidence at 1%, 5%,and 10% respectively.**				

Since, the results of ARDL bound test of model 2 are inconclusive this study will consider ECM to conclude the presence of cointegration in the model 2. The coefficient of ECM of model 2 is -0.362 which is negative less than one and statistically significant indicating the existence of cointegration in the model 2. Moreover, convergence towards the equilibrium with the 36% speed of adjustment at 1% level of significance has been found.

The result of ARDL cointegrating and long-run form (1, 0, 0, 2, 2,) model 2 for cointegration level between economic growth, total remittances, foreign direct investments, official development assistance and public debt are shown in **table 9**. The results of ARDL model 2 indicate that FDI and ODA at 1st lag have statistically significant and positively associated with economic growth. However, FDI, ODA and public debt are statistically significant and positively associated with growth of Pakistan's economy in the long run. Conversely, association of total remittance with economic growth is statistically insignificant in both the short and long run therefore hypothesis H2 has been rejected at 5% or 10% level of significance. Hence the values of coefficients determined that ODA are highly associated with economic growth as well as public debts and FDI respectively.

The economic growth of Pakistan highly depends on ODA and public debt whereas; least depends on FDI due to fiscal and trade deficit, economic instability, and small market size with less potential and global competitiveness. On the contrary, association of remittances with economic growth of Pakistan is statistically insignificant due to its nonproductive and consumption-oriented usage along with corruption and inefficient policies.

Residual Diagnostics:

Table 10: Heteroskedasticity Test: ARCH			
F-statistic		**P-value**	
Obs*R-squared		**P-value (Chi sq.)**	
H0: There is no heteroscedasticity **Confidence level: at 5%.**			

Likewise, ARCH test has been applied for model 2 to identify the issue of heteroskedasticity. The results shown in **table 10** indicated that observed R-square's p-value is more than 0.05 therefore, the H0 has been acknowledged at 5% level of significance. Hence, the variance is constant in this model.

Table 11: Breusch-Godfrey Serial Correlation LM			
F-statistic		**P-value**	

Obs*R-squared		P-value (Chi sq.)	
H0: There is no autocorrelation **Confidence level: at 5%.**			

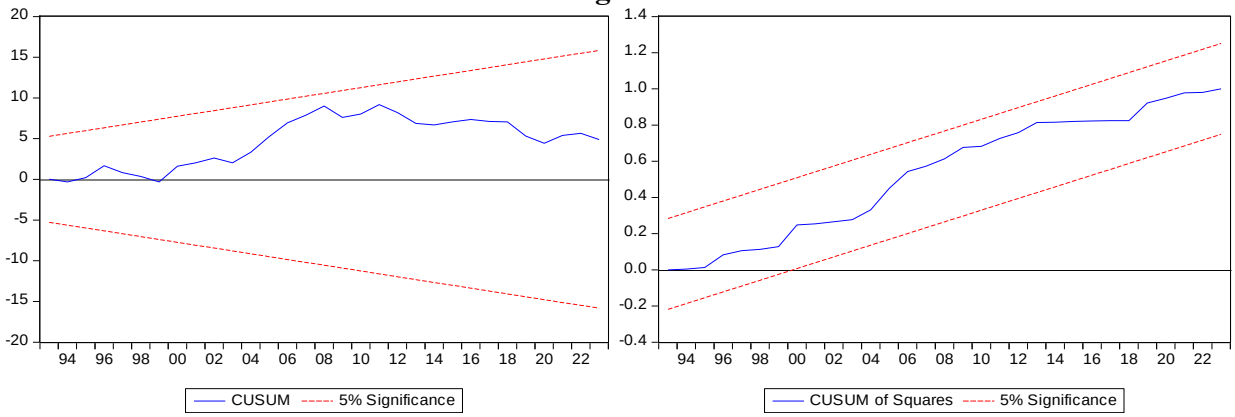
Similarly, **Table 11** shows the outcomes of Breusch-Godfrey Serial Correlation LM Test for detection of autocorrelation in the model 2. According to the result it is indicated that observed R-square's p-value is more than 5% therefore, H0 has been acknowledged at 5% level of significance. Hence, the variance is constant in this model.

Table 12: Histogram Normality Test			
Jarque-Ber:	2.3	P-valu	0.3
H0: There is a normality **Confidence level: at 5%.**			

Furthermore, outcome of histogram normality test shown in **table 12** indicated that p-value of jarque-bera is more than 5% therefore, the H0 normality has been accepted at 5% level of significance.

Stability Diagnostics Tests: CUSUM and CUSUM of Squares Test

Figure: 4



Additionally, the above **figure 4** indicated the results of CUSUM and CUSUM of Squares Tests used to identify the stability of ARDL model. The outcomes of both the stability tests indicated that throughout the selected period, values of both tests are between the upper and lower bands of 5% significance indicating robustness of stability in the model 2.

7.4. Granger Causality Tests:

Pairwise Granger Causality Tests Sample: 1981 - 2023 Lags: 1			
Null Hypothesis:	**Obs**	**F-Statisti**	**Prob.**
LUSA does not Granger Cause LGDP			
LGDP does not Granger Cause LUSA			
LUK does not Granger Cause LGDP			

LGDP does not Granger Cause LUK			
LEU does not Granger Cause LGDP			
LGDP does not Granger Cause LEU			
LTGCC does not Granger Cause LGDP			
LGDP does not Granger Cause LTGCC			
LOTH does not Granger Cause LGDP			
LGDP does not Granger Cause LOTH			

Finally, Granger causality test has been applied to identify direct causality among the variables of the model 1 and 2. According to outcomes of granger causality test of model 1 it is found that remittances from USA and GCC countries granger causes GDP of Pakistan while GDP of Pakistan does granger cause the remittances from UK and EU countries.

Table 14
Pairwise Granger Causality Tests
Sample: 1981 – 2023
Lags: 1

Hypothesis: H0	Observation	F-Stats	P-value
LTREM doesn't Granger Cause L	41	0.2	0.762
LGDP doesn't Granger Cause LT		4.4	0.018
LFDI doesn't Granger Cause LG	41	1.6	0.198
LGDP doesn't Granger Cause LF		0.8	0.446
LODA doesn't Granger Cause LC	41	3.6	0.035
LGDP doesn't Granger Cause LC		6.5	0.004
LPDBT doesn't Granger Cause L	41	0.8	0.423
LGDP doesn't Granger Cause LP		2.7	0.076

According to outcomes of granger causality test of model 2, none of the foreign financial inflow granger causes GDP of Pakistan except ODA due to adverse and in stable condition of the economy Pakistan highly relies on foreign ODA. Conversely, GDP does granger cause the remittances, official development assistance and public debt in Pakistan at 5 % level of significance. In Pakistan economic growth is declining which is directly affecting foreign financial inflows because decline in GDP reduces domestic employment opportunities which led to a large number of migrations to other developed countries which raises the inflows of remittances. Similarly, a declining GDP causes decline in government revenues which lead to fiscal deficit and raises the public debt and official development assistance.

8. CONCLUSION:

This study concluded through the ARDL models that there is a presence of cointegration in both the models. The ARDL analysis of model 1 indicated that remittances from UK only has positive impact on GDP of Pakistan in the long as well as brief period of time while, GCC and other selected countries have statistically significant and negative impact on GDP. However, remittances from USA and EU has insignificant impact on growth of Pakistan in the long time period while in the

short span only EU has significant but negative impact. Moreover, the values of coefficients specified that remittances from GCC are highly associated with GDP of Pakistan as compare to other economies. Furthermore, the results of ARDL model 2 indicate that in the short run FDI and ODA at 1st lag are statistically significant and positively associated with economic growth. However, FDI, ODA and public debt are statistically significant and positively associated with growth of economy of Pakistan in the long run. Conversely, association of total remittance with economic growth is statistically insignificant. Furthermore, the values of coefficients determined that ODA are highly associated with economic growth while public debts and FDI associated with economic growth respectively. Hence it is concluded that remittances from UK is contributing positively in economic growth of Pakistan. Conversely, GCC and other countries which include Australia, Canada and Japan are negatively associated with economic growth of Pakistan while another largest remittances inflow from USA has no significant association with economic growth of Pakistan. Moreover, ARDL model 2 indicated that FDI is statistically significant and positively related with the growth of economy in both the short and long time period. Additionally, ODA and public debt are statistically significant and positively associated with growth of Pakistan's economy in the long run only while, ODA at 1st lag have statistically significant and positively linked with economic growth in the short period of time span. Conversely, association of total remittance with economic growth is statistically insignificant in both the short and long run. Hence the values of coefficients determined that ODA are highly associated with economic growth while, public debts and FDI associated with economic growth respectively. The economic growth of Pakistan highly depends on ODA and public debt whereas; least depends on FDI due to fiscal and trade deficit, economic instability, and small market size with less potential and global competitiveness. On the contrary, association of remittances with economic growth of Pakistan is statistically insignificant or negative due to its nonproductive and consumption oriented usage along with corruption and inefficient policies. Likewise, Granger causality test also indicated that remittances from USA and GCC does granger cause GDP while other remittances sending countries as well as three major foreign financial inflows does not granger cause the economic growth of Pakistan except ODA. On the contrary; GDP does granger cause remittances, official development assistance and public debt of Pakistan because decline in GDP reduces domestic employment opportunities which leads to a large number of migration to other developed countries which rises the inflows of remittances. Similarly, a declining GDP causes decline in government revenues which lead to fiscal deficit and rise in public debt and official development assistance in Pakistan.

9. POLICY IMPLICATION:

This research study will help the government and institutes to effectively utilize worker remittances for development and economic growth, while it will also help policy makers to attract more remittances from major influencing host countries. Furthermore this study suggested that in case of Pakistan most of remittances negatively affect economic growth due to its non-productive use along with inefficient policies therefore; policy maker should focus on diverting this financial source towards productive use along with implication of strict laws and regulation to avoid illegal channels and corruption.

10. REFERENCES:

Abbas, B., Iqbal, S., & Malik, I. (2018). FDI, External Debt and Their Impact on Economic Growth of Pakistan: Empirical Evidence Using Larger Sample Size. *Journal of Contemporary Management Sciences, 4*(1), 50–65. https://doi.org/10.2139/ssrn.3121113

Ahmed, J., Zaman, K., & Shah, I. A. (2011). An empirical analysis of remittances-growth nexus in Pakistan using bounds testing approach. *Journal of Economics and International Finance*, *3*(3), 176–186.

Bank, W., Team, R., & Protection, S. (2023). *Remittances Remain Resilient but Are Slowing Migration and Remittances Team Social Protection and Jobs World Bank* (Issue June). www.KNOMAD.org.

Cismaș, L. M., Curea-Pitorac, R. I., & Vădăsan, I. (2019). The impact of remittances on the receiving country: some evidence from Romania in European context. *Economic Research Ekonomska Istrazivanja*, *33*(1), 1073–1094.

Kanewar, K. (2018). Imports , remittances , direct foreign investment and economic growth in Republic of the Fiji Islands : An empirical analysis using ARDL approach. *Kasetsart Journal of Social Sciences*, *39*(3), 439–447. https://doi.org/10.1016/j.kjss.2017.07.002

Khan, M. K., Teng, J., & Khan, M. I. (2019). The Effect of Migrant Remittances on Economic Growth : an ARDL Approach. *Inzinerine Ekonomika-Engineering Economics*, *30*(4), 434–441.

Kumar, R. R. (2012). Role of Trade , Aid , Remittances and Financial Development in Pakistan. *Munich Personal RePEc Archive*, *38871*.

Le, T. (2009). Trade , Remittances , Institutions ,. *International Economic Journal*, *23*(3), 391–408. https://doi.org/10.1080/10168730903119443

Lim, R. J. M., Tolentino, M. Y. A., & Carlos L. Manapat. (2022). The Relationship between Philippine Population, Remittances, Foreign Direct Investment, and Trade Openness on its Gross Domestic Product. *Journal of Economics, Finance and Accounting Studies*, *4*(4), 168–201. https://doi.org/10.32996/jefas.2022.4.4.19

Morekwa, E., Misati, R. N., Kipyegon, L., & Ndirangu, L. (2012). Remittances , financial development and economic growth in Africa. *Journal of Economics and Business*, *64*(3), 240–260. https://doi.org/10.1016/j.jeconbus.2012.01.001

Mustafa, K., & Ali, S. R. (2018). The Macroeconomic Determinants of Remittances in Pakistan. *International Journal of Business Management and Finance Research*, *1*, 1–8.

Olayungbo, D. O., & Quadri, A. (2019). Remittances , financial development and economic growth in sub-Saharan African countries : evidence from a PMG-ARDL approach. *Financial Innovation*, *5*(9), 1–25.

State Bank of Pakistan. (n.d.). *External Sector, State Bank of Pakistan Annual Report 2022-2023,*.

Sutradhar, S. R. (2020). The impact of remittances on economic growth in Bangladesh, India, Pakistan and Sri Lanka. *International Journal of Economic Policy Studies*, *14*(1), 275–295. https://doi.org/10.1007/s42495-020-00034-1

Tahir, M., Jan, A. A., Shah, S. Q. A., Alam, M. B., Afridi, M. A., Tariq, Y. Bin, & Bashir, M. F. (2020). Foreign inflows and economic growth in Pakistan: some new insights. *Journal of*

Chinese Economic and Foreign Trade Studies, *13*(3), 97–113. https://doi.org/10.1108/JCEFTS-01-2020-0005

the world bank. (2017). *MIGRATION AND REMITTANCES Recent Developments and Outlook* (Issue April).

Türedi, S., & Yavuz, V. (2020). Studies on Interdisciplinary Economics and Business. In *Remittances and Economic Growth: A Causality Analysis for Turkey* (Vol. 3, Issue September).

abbas, B., Iqbal, S., & Malik, I. (2018). FDI, External Debt and Their Impact on Economic Growth of Pakistan: Empirical Evidence Using Larger Sample Size. *Journal of Contemporary Management Sciences, 4*(1), 50–65. https://doi.org/10.2139/ssrn.3121113

Ahmed, J., Zaman, K., & Shah, I. A. (2011). An empirical analysis of remittances-growth nexus in Pakistan using bounds testing approach. *Journal of Economics and International Finance*, *3*(3), 176–186.

Bank, W., Team, R., & Protection, S. (2023). *Remittances Remain Resilient but Are Slowing Migration and Remittances Team Social Protection and Jobs World Bank* (Issue June). www.KNOMAD.org.

Cismaș, L. M., Curea-Pitorac, R. I., & Vădăsan, I. (2019). The impact of remittances on the receiving country: some evidence from Romania in European context. *Economic Research-Ekonomska Istrazivanja*, *33*(1), 1073–1094. https://doi.org/10.1080/1331677X.2019.1629328

Kanewar, K. (2018). Imports , remittances , direct foreign investment and economic growth in Republic of the Fiji Islands : An empirical analysis using ARDL approach. *Kasetsart Journal of Social Sciences*, *39*(3), 439–447. https://doi.org/10.1016/j.kjss.2017.07.002

Khan, M. K., Teng, J., & Khan, M. I. (2019). The Effect of Migrant Remittances on Economic Growth : an ARDL Approach. *Inzinerine Ekonomika-Engineering Economics*, *30*(4), 434–441.

Kumar, R. R. (2012). Role of Trade , Aid , Remittances and Financial Development in Pakistan. *Munich Personal RePEc Archive*, *38871*.

Le, T. (2009). Trade , Remittances , Institutions ,. *International Economic Journal*, *23*(3), 391–408. https://doi.org/10.1080/10168730903119443

Lim, R. J. M., Tolentino, M. Y. A., & Carlos L. Manapat. (2022). The Relationship between Philippine Population, Remittances, Foreign Direct Investment, and Trade Openness on its Gross Domestic Product. *Journal of Economics, Finance and Accounting Studies*, *4*(4), 168–201. https://doi.org/10.32996/jefas.2022.4.4.19

Morekwa, E., Misati, R. N., Kipyegon, L., & Ndirangu, L. (2012). Remittances , financial development and economic growth in Africa. *Journal of Economics and Business*, *64*(3), 240–260. https://doi.org/10.1016/j.jeconbus.2012.01.001

Mustafa, K., & Ali, S. R. (2018). The Macroeconomic Determinants of Remittances in Pakistan. *International Journal of Business Management and Finance Research*, *1*, 1–8.

Olayungbo, D. O., & Quadri, A. (2019). Remittances , financial development and economic growth in sub-Saharan African countries : evidence from a PMG-ARDL approach. *Financial*

Innovation, *5*(9), 1–25.

State Bank of Pakistan. (n.d.). *External Sector, State Bank of Pakistan Annual Report 2022-2023,*.

Sutradhar, S. R. (2020). The impact of remittances on economic growth in Bangladesh, India, Pakistan and Sri Lanka. *International Journal of Economic Policy Studies*, *14*(1), 275–295. https://doi.org/10.1007/s42495-020-00034-1

Tahir, M., Jan, A. A., Shah, S. Q. A., Alam, M. B., Afridi, M. A., Tariq, Y. Bin, & Bashir, M. F. (2020). Foreign inflows and economic growth in Pakistan: some new insights. *Journal of Chinese Economic and Foreign Trade Studies*, *13*(3), 97–113. https://doi.org/10.1108/JCEFTS-01-2020-0005

the world bank. (2017). *MIGRATION AND REMITTANCES Recent Developments and Outlook* (Issue April).

Türedi, S., & Yavuz, V. (2020). Studies on Interdisciplinary Economics and Business. In *Remittances and Economic Growth: A Causality Analysis for Turkey* (Vol. 3, Issue September).

Suggested Reviewers

1. Dr. Miao Miao

School of Economics and Management, Chengdu Normal University, Chengdu, China;
Email:drmmiao@gmail.com

2. Dr. Sadaf Majeed
   AERC
   Email: baigsadaf82@gmail.com