The Role of Foreign Remittances Inflows and Financial Sector Development in The Economic Growth of Pakistan

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Abstract

This study explores the effects of foreign remittancesand financial sector developmenton Pakistan's economic growth during 1975-2019. Autoregressive Distributed Lag bound test has been applied to the data based on the results obtained from Phillips Perron and Augmented Dickey-Fuller tests. The findingsreveal that foreign remittances heighten economic growth both in the short-run and long-run. However,financial sector development turned significant in the short run and in the long-runits impact becomes insignificant. The findings suggest that the government needs to reduce the transaction-cost of sending remittances to the country and should take measures for financial sector developmentfor boosting up the economic performance of the country.

Keywords:*ARDL bound test; remittances; financial sector development; economic growth; Pakistan.*

Introduction

In the year 2015, the United Nations have set seventeen (17) Sustainable Development Goals(SDGs) to promote economic growth through the reduction inpoverty and income inequality, providing better healthcare, and providing how financing is required to achieve these life-changing goals. Domestic resources fulfill the major financing but the major hurdle in this way is to reduce the saving-investment gaps and motivate domestic savings. However, United Nations report(2015), ideatesthe importance of externalcapital financing. The different forms of external capital flows include foreign remittances, and assistance (ODA), and FDI (Raza et al., 2020). The necessary condition for sustainable

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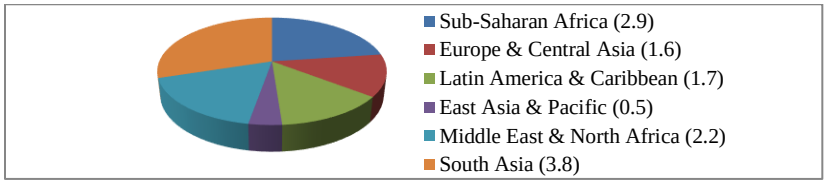
development is economic growth. Therefore, these external financing plays a vital role in generating economic growth.

Foreign remittances comprise the greatest externalsourceof capital financing for developing economies following the FDI and ODA. In literature studies (Aggrawal et al., 2011;Imai et al., 2014;Ratha, 2005) confirmed that remittance inflows to developing economies surpass the FDI and ODA. According to the WorldBank report (2019), remittances inflow to low-and middle-income countries isUS$550 billion, surpassing the FDI and ODA inflows in these countries. Despite, the significant portion and importance of remittances in the external capital-flows, the influence of remittance on economic growth has not adequately explored by researchers and academicians as compared to the other external capital inflows such as FDI and ODA (Alfaro et al., 2004; Easterly, 2003;Rajan&Subramanian, 2005). There are ambiguous results in the literature regarding the link between remittances, the financial-sector, & growth. On one side, the developed financial sector, by enhancing efficiency and lowering transaction-costs, might channelize remittances towards productive and less risky investment projects that yield profits and therefore, act as a catalyst to enhance growth(Giuliano & Ruiz-Arranz, 2009; Aggrawal et al., 2011; Bettin&Zazzaro, 2012). On the other side, remittances might behave as a substitute for the less-developed financial sector and credit-markets, by helping out the businesses get around the lack of collaterals and startups productive economic activities.(Abbas et al.,2017;Kumar et al.,2018;Sobiech, 2019; Muhammad et al.,2020; Das &Sethi, 2020).

Stylized Facts and Trend Analysis

According to the World Bank (2020), the highest remittance-recipient region is South-Asia in the world. Figure.1 presented the percentage of remittances received in different regions in the world.

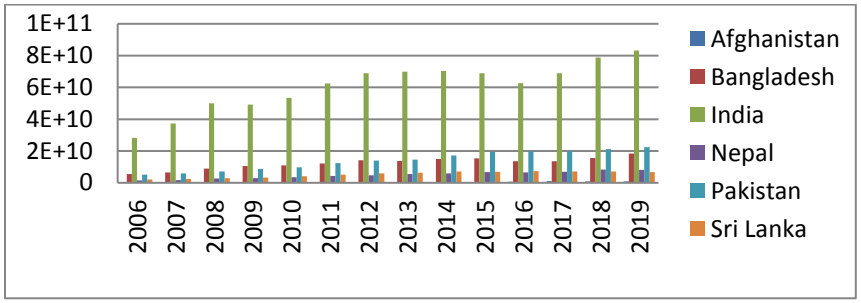
Figure 1:Remittance-Recipient Regions in the World.



Source: World Bank Report (2020)

Figure.2 presented the foreign remittances received in current US$ in remittance-recipient countries in South-Asia. In South-Asia, Pakistan is an emerging economy whose overall economic growth has been positive and receiving a great number of remittance inflows.

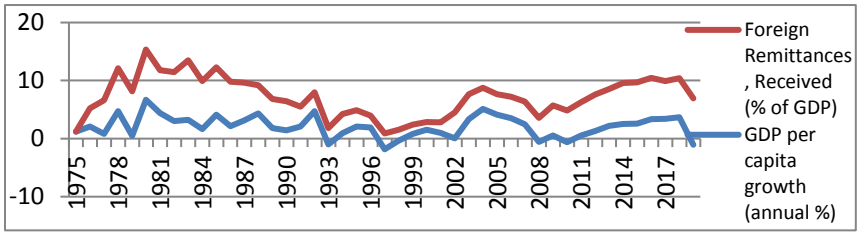
Figure 2: Foreign Remittances Received (CurrentUS$) in South-Asia



Source: World Development Indicators (2020)

According to the World Bank (2019), Pakistan received remittances of about US$ 21 billion in 2019. Figure.3 presented remittances inflows received in Pakistan and the GDP per capita growth from 1975 to 2019.

Figure 3: Foreign Remittances, Received (% of GDP) & GDP Per Capita Growth in Pakistan



Source: World Development Indicators (2020)

Figure.3, represented the trend-analysis of economic growth in Pakistan. The GDPper capita growth in Pakistan touched the horizontal-axis in the years-1977,1979,1993,1997,2008,2009. The solid reasons for the declined growth were in the 1970s and onwards Pakistan's economy faces great challenges both internally and externally. Like, the division of Pakistan and Bangladesh in 1971, in May-1972 massive-devaluation of

the Pakistani-rupee, in August-1973, the worst floods attack, nationalization of banks,world-recession in 1974-1977, exchange-rate fluctuations, trade-liberalization, the increase in International Petroleum Prices, the post-impact of 9/11 and the financial crisis in 2007-2008. All these factors have a great impact on Pakistan's economy, but fortunately, due to heavy external capital-inflows in the form of FDI and remittances, it not only rescue the economy but also contributes to the economic growth in the form of physical-captial and human-capital and smoothen consumption-patterns.

This study presents, a macroeconomic level study that explored the effects of the financial secetor development, and remittances on Pakistan's economy using time-series data from 1975-2019. It contributes to the literature in two ways. Firstly, it captures the short-term and long-term impact of remittances on Pakistan's economy. Secondly, this study constructs an index for Pakistan's financial sector development, to analyze either the financial sector contributes to economic growth or not?

Hypothesis to be tested:

H1: There is a significant short-term and long-term impact of foreign remittances on the economic growth in Pakistan.

H2: Financial sector enhances short-term and long-term Pakistan's economic growth.

The upcoming section contains on review of the relevant literature, while, section 3 deals with materials and methods, section 4shows results and discussion, and finally,the conclusion and recommendations windup the study.

Literature Review

Literature studies highlight both negative and positive impacts of remittances on economic growth.Elerman (2003) remittances lead to an increase in consumer's purchasing power and demand more goods and services, hence increases production-levels and growth with inflationary pressure in the economy. Chamiet al.,(2005)concluded that due to brain-drain and reduction in labor force participation, remittances negatively impact economic growth.Uprety(2017) found a negative impact of remittance on economic growth from 1976-2013 in Nepal. The study employed Johansen cointegration and VECM techniques and concluded that instead of investment remittances are utilized for consumption. Jena and Sethi (2019) concluded that the inward remittance negatively affects

exports. Bird and Choi(2019) investigated the impact of remittances on economic growth and concluded that remittances harm the economy. Burney(1987)explored the effects of remittances in Pakistan from 1969-1986 and concluded that remittances reduced the current-account deficit, and mitigate the demand for external-loans, which further reduced the external debt burden, and external debt harms the economic growth (Din et al.2020). Iqbal and Sattar(2005) concluded that remittances can be utilized properly if the government improves the investment-business environment to attract remitter to send more remittances to their homeland.

Qayyumet al.(2008) analyzed the poverty-reducing channel of remittances in Pakistan from1973-2007. They concluded that remittances mitigate poverty and have a optimistic impact on GDP growth in Pakistan. Nisah and Fayissa(2013) explored the effects of remittances on economic growth in 64 countries from1985-2007. They found a positive significant impact of remittances on economic growth. Azam(2015) analyzed the impact of remittances on economic growth &development in four developing Asian countries. The study suggested that the remittances increased expenditures through investment, and consumption which is vital for economic development. Azam et al.(2016) concluded that remittance and FDI inflows have a positive consequence on economic growth. Abbas et al. (2017) investigated the political and financial factors affecting remittances and growth in Pakistan. They confiremed that remittances have a encouraging consequences on Pakistan's economy. Kumar et al.(2018) explored the consequences of remittances and financial sector development in Kyrgyzstan & Macedonia and concluded that remittances have a encouraging consequences oneconomic growth. Sobiech (2019) revealed that financial sector development & remittances act as a substitute growth process.Eggohet al.(2019) concluded that remittances positively influenceeconomic growth. Abduivaliev and Bustillo(2020), concluded that remittances affecteconomic growth by mitigating poverty-levels and smoothen consumption-patterns. Muhammadet al.(2020) concluded that foreign remittances have a great influence in enhancing Pakistan’s economic growth in the presence of good institutional-quality and developed financial sector. Das and Sethi (2020), concluded that remittances optimistically consequence output growth in Sri Lanka and India.

Table 1:Summary of previous literature on remittance and economic growth relationship

Author(s)	Time-period, Country(s), Methodology	Independent-Variable	Dependent-variables	Findings
Muhammad et al.(2020)	2000-2016 Pakistan OLS	GDP per Capita	Remittances, FD, Inflation, Good Governance	Remittances positively influence growth, subject to good institutions & financial-sector
Das&Sethi (2020)	1980-2016 Sri Lanka &India. Grange-Causality &Vector-Error Correction	GDP per Capita	Remittances, FDI,ODA, FD	Remittance positively affect growth
Abduivaliev&Bustillo (2020)	1997-2016 Commonwealth of Independent States Random-and Fixed-effect &OLS	Real GDP per Capita	Remittances, GINI, Inflation, GE,TO, Edn.	Remittances significantly contribute to the growth
Jena &Sethi (2019)	1993 -2017 Pakistan, Bangladesh India,Nepal& SriLanka. Fully Modified-OLS & Dynamic-OLS	Exports	Remittances, Real GDP, FDI,exchange-rate	Remittances negatively affect exports&growth
Bird &Choi (2019)	1976- 2015 51 Developing countries, Fixed-effects and GMM	Real GDP per Capita	Remittances, FDI,ODA, GCF,POPG, Inflation, GE,TO,CAB	Remittances hurt economic growth
Eggoh et al. (2019)	2001-2013 49 developing countries,	Real GDP per Capita	Remittances, FDI, ODA, Inflation,	Remittances have a positive effect on growth

	Panel Smooth Transition Regression, & System-GMM		Edn,GE,TO, GCF, FD	
Sobiech (2019)	1970-2010, Developing countries Quasi-Maximum Likelihood &System-GMM	Real GDP per Capita	Remittances, FD, Remittances * FD, TO, Inflation, POPG,GE	Remittances act as a cushion when the inefficient financial –sector
Kumar et al.(2018)	1990-2015 Kyrgyzstan & Macedonia ARDL bound test	GDP per Capita	Remittances, FD, Structural dummies, POPG, GCF	Remittances enhance growth
Abbas et al.(2017)	1972-2012, Pakistan, GMM	Remittance	GDP, Inflation, Financial-liberalization, Exchange-rate, Govt.stability, law&order, corruption,Edn	Remittances have positively influence growth.
Azam et al.(2016)	1993-2013, 12 Europe &Central-Asia, Panel fixed-effects	Real GDP per Capita	Remittance, FDI, exports, external debt, GCF	Positive impact of Remittances on growth.
Azam (2015)	1976-2012, Bangladesh, India, Pakistan, & Sri Lanka, Simple Multivariate &OLS	GDP per Capita	Remittance, FDI, TO, Telephone lines	Remittances have a positive link with growth

Source: Author's compilation

OLS=Ordinary Least Squares, GMM= Generalized Method of Moments, ARDL=AutoregressiveDistributed Lag

GDP = Gross Domestic Capital, FDI= Foreign Direct Investment, ODA=Official Development Assistance, FD=Financial Development, TO=Trade-Openness, CAB=Current Account Balance, GCF=Gross Capital Formation, POPG= Population Growth, GE=Government Expenditure, Edn= Secondary School Enrollment,

Materials and Methods

3.1Variables Description, Time-Period, and Data source

To capture the impact of remittances on the long-run economic growth in Pakistan, this study has selected a time-frame from 1975-2019. The motive behind the selection of the year-1975 is the initial-period to focus on the consequence of remittances on the economic growth in Pakistan. Furthermore, to capture the post-impact of the division of East-West Pakistan. The data has been traced from World Development Indicators, (2020). Table 2. Presented details of selected variables.

Table 2:Detailsof variables

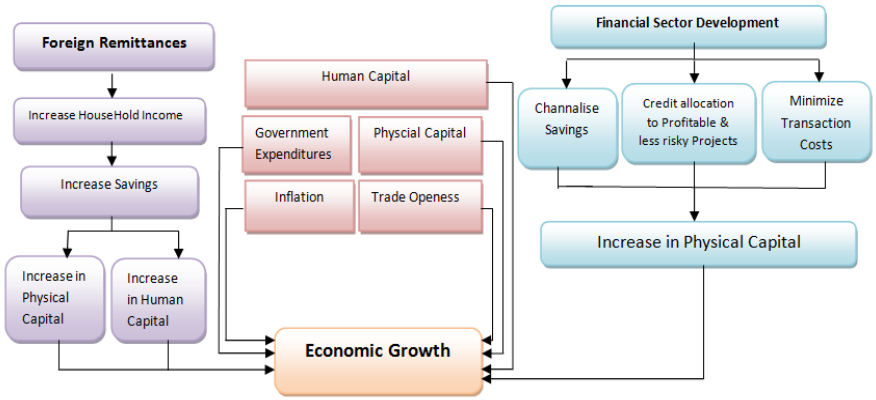
Variable	Symbol-used	Measurement/proxy-used	Expected-sign
Economic growth	GDP	GDP Per capita Income	Positive
Remittances	REM	Foreign Remittances(%ofGDP)	Positive
Human Capital	LF	Labor-Force Participation(%)	Positive
	HK	Secondary-School Enrollment(%)	Positive
Physical Capital	PC	Gross Capital-Formation(%ofGDP)	Positive
Trade-Openness	TO	Trade(%ofGDP)	Positive
Government Expenditures	GEXP	GovernmentFinalConsumption-Expenditures(%ofGDP)	Positive
Inflation	CPI	Inflation(%)	Negative
Financial Sector Development	FDIndex	Broad-Money(%ofGDP)	Positive
		Domestic-Credit to Private-Sector (%ofGDP)	Positive
		Domestic-Credit to Private-Sector by Banks(%ofGDP).	Positive

Source: Author's compilation

ConceptualFramework

The basic conceptual framework of the study is presented in Figure 4.

Figure 4: Conceptual framework



Source: Author's Construction

Theoretical &Empirical Model

Remittances support the neo-classical theory of Smith(1776) and Ravenstein(1889). They assumed that people migrate from poor to rich economies due to income and resource differences. Lucas and Stark(1985) explained three main-motives behind remittances i.e.the Altruistic-motive,Self-Interest, & Tempered-Altruism.The Solow(1956) model shows the link between aggregate input& outputs in the Cobb-Douglas production function.

$$\boldsymbol{Y = AL^{1-\propto}Kp^{\propto}}(2)$$

According to Solow(1956),Barro(1991; 1996) many factors influence the growth of the economy. In literature, a strong link was found among remittances, financial sector, other control variables with economic growth.

$$GDP_t = \beta_0 + \beta_1 REM_t + \beta_2 LF_t + \beta_3 HK_t + \beta_4 PC_t + \beta_5 FDIndex_t + \beta_6 lnCPI_t + \beta_6 GExp_t + \beta_7 TO_t + e_t(4)$$

The appropriate level of remittances helps to achieve higher economicgrowth. Literature showed that remittances may be positively and negatively correlated with growth depending on how they are injected into the economy (Smith,1776;Ravenstein,1889;Lucas&Stark,1985;Glytsos,2005; Azam etal.,2016;Abbas etal.,2017; Muhammad etal.,2020). Trade-openness has a encouraging and noteworthy impact on output growth (Iqbal & Sattar, 2005; Azam, 2020). Human and physical capital is the engine of an economy(Solow,1956; Barro,1991; 1996). Inflation can harm economic

growth(Iqbal & Sattar,2005). The developed financial sector plays a vital role in enhancing and channelizing saving funds into the most productive investment uses. Furthermore, it smoothens the investment patterns by lowering transaction-cost and measuring the credit-risk of the firms, and allocate saving-funds to the projects which yield the highest returns(Aggrawaletal.,2011;Giuliano&RuizArranz,2009;Bettin&Zazzaro, 2012). This study constructs the financial sector Index following (Yasmenetal.,2018). Before constructing the financial Index. It is mandatory to use the same scale of aggregation and convert the dimensions of the variable into the same scale.TheFDIndex for normalization is as below:

$$X1i = \frac{[FD_i - FD_{Min}]}{[FD_{min} - FD_{Max}]} (5)$$

In eq(5), X1i refers to the 03 dimensions of financial-sector development The parameters FD_i refers to indicator value, FD_{Max} and FD_{Min} denotes maximumvalues& minimum values of indicators. The standard method is employed for giving the equal-weights of all indicators to construct an aggregate single-value index. The mathematical form is as below:

$$FDIndex = \frac{\sum_{i=1}^{n} X1i}{03} (6)$$

The ARDLBound Testing Model-Specification

The ARDL Bound Testing model was introduced by Pesaranet al.(1998) and extended by Pesaranet al.(2001) to capture the long-term impact and short-run dynamics among variables, when data is non-stationary or of mixed order of Integration.i.e.I(0), I(1), but none of the variables is stationary at 2nd difference, I(2). The ARDL bound test is superior to other techniques in many ways. It can be used regardless of Stationarity issues in data. It takes an optimal number of lags in the modeling. It also captures the short-run dynamics through the error correction method along with the long-run impact. The ARDL model outperforms the Johansen and Juseluies method by considering small samples. There are no residual correlation issues in the ARDL model, so it is best for the analysis of remittances in which endogeneity problems may occur frequently. To find the long-run impact of eq(4), the ARDL model-specification is presented below.

$$\Delta GDP = \beta 0 + \sum_{i=1}^{p} \beta_1 \Delta GDP_{t-i} + \sum_{i=1}^{p} \beta_2 \Delta Rem_{t-i} + \sum_{i=1}^{p} \beta_3 \Delta LF_{t-i} + \sum_{i=1}^{p} \beta_4 \Delta HK_{t-i} + \sum_{i=1}^{p} \beta_5 \Delta PC_{t-i} + \sum_{i=1}^{p} \beta_6 \Delta GExp_{t-i} + \sum_{i=1}^{p} \beta_7 \Delta CPI_{t-i} + \sum_{i=1}^{p} \beta_8 \Delta TO_{t-i} + \sum_{i=1}^{p} \beta_9 \Delta FDIndex_{t-i} + \gamma_1 Rem_{t-i} + \gamma_2 LF_{t-i} + \gamma_3 HK_{t-i} + \gamma_4 PC_{t-i} + \gamma_5 GExp_{t-i} + \gamma_6 CPI_{t-i} + \gamma_7 TO_{t-i} + \gamma_8 FDIndex_{t-i} + \varepsilon t. (7)$$

Ineq(7)βo=drift-component,єt=error-term. The summation-sign represents the short-term error-correction, however, in the long-term effect is represented by γ.

$$\Delta GDP = \beta 0 + \sum_{i=1}^{p} \beta_2 \Delta Rem_{t-i} + \sum_{i=1}^{p} \beta_3 \Delta LF_{t-i} + \sum_{i=1}^{p} \beta_4 \Delta HK_{t-i} + \sum_{i=1}^{p} \beta_5 \Delta PC_{t-i} + \sum_{i=1}^{p} \beta_6 \Delta GExp_{t-i} + \sum_{i=1}^{p} \beta_7 \Delta CPI_{t-i} + \sum_{i=1}^{p} \beta_8 \Delta TO_{t-i} + \sum_{i=1}^{p} \beta_9 \Delta FDIndex_{t-i} + \omega ECT_{t-i} + \varepsilon t. (8)$$

In eq(8), ECT_{t-i}presented the after-shock speed-adjustment that occurred in the short-term.

Empirical Results and Discussion

The data is analyzed for checking the order of integration by the Stationarity test of ADF and PP unit root tests and presented in table 3 as under:

Table3:Unit-root test results

ADF-test	Level-form		PP-test	Level-form
Variables	Intercept	Trend & Intercept	Intercept	Trend & Intercept
GDP_t	-4.872***	-5.0335***	-4.9166***	-5.0076***
Rem_t	-1.3395	-1.3130	-1.6405	-1.6251
LF_t	1.1350	-0.5476	0.3649	-0.8253
HK_t	0.197319	-1.7001	0.7661	-1.2569
PC_t	-2.1178	-3.0777	-2.1743	-3.0777
$GExp_t$	-1.5005	-1.5372	-1.7583	-1.8162
CPI_t	-4.3536***	-4.3113***	-3.1796**	-3.1128
TO_t	-2.4709	-2.5944	-2.5822	-2.7449
$FDIndex_t$	-3.4851**	-3.4923*	-3.0629**	-2.9598

ADF-Test	First-differences		PP-Test	First-differences
Variables	Intercept	Trend & Intercept	Intercept	Trend & Intercept
D(GDP_t)	-10.215***	-10.1026***	-13.421***	-13.0373***
D(Rem_t)	-5.6211***	-5.5492***	-5.6396***	-5.5623***
D(LF_t)	-4.6905***	-5.3366***	-4.9235***	-5.3886***
D(HK_t)	-4.6178***	-4.3218***	-4.1518***	-4.329***
D(PC_t)	-6.6614***	-6.6309***	-6.6656***	-6.6412***
D($GExp_t$)	-5.3008***	-5.2376***	-5.3103***	-5.2474***
D(CPI_t)	-7.0060***	-6.9221***	-7.0185***	-6.9317***
D(TO_t)	-6.5144***	-6.4785***	-6.5872***	-6.6714***
D($FDIndex_t$)	-5.5940***	-5.5318***	-5.6095***	-5.5509***

Note: (*)(**)(***) are10%, 5%, 1% of significant levels, respectively.

The ADF and PP tests confirmed the mixed order of integration. Hence, the bound-test is applied to check the cointegration-status.the optimal-lags based on AIC and SBC have been selected and presented in Table 4, Table.5 presented bound-test results

Table 4: The Optimal-Lag selection

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-493.5504	NA	174.59	25.028	25.324	25.134
1	-337.1798	250.1930	0.8454	19.659	22.023*	20.514
2	-282.2566	68.65399	0.7921	19.363	23.796	20.966
3	-184.7338	87.77054*	0.1393	16.937	23.439	19.288
4	-89.98681	52.11084	0.0811*	14.649*	23.220	17.748*

* denotes lag-order FPE:TheFinal-prediction-error
LR:LR test-statistic AIC:TheAkaike-criterion
HQ:Hannan-Quinn-information- criterion SC:TheSchwarz-criterion

Table 5: Bound-Test Results

Test-Statistic	Value	K	Decision
F-statistic	**9.713945**	6	
Critical-Value Bounds			
Significance-Level	Lower-Bound value	Upper-Bound value	Co-Integrated
10percent	2.12	3.23	
5percent	2.45	3.61	
1percent	3.15	4.43	

Table 5, the F-statistics is greater than the values of upper-bounds and has confirmedthe existence of cointegration. Another way to confirm the cointegration decision is through the Error-correction technique. The model is cointegratedif the value of ECM is negative and significantlies within the range of 0-2.Table 6, presented the summary statistics and the correlation-matrix results. Based on insignificant probability-values of Jarque-Bera, the study provided strong evidence for the normality of the model. The correlation-matrix, and the LM Breusch-Pagan test has confirmed no heteroscedasticity issues. Similarly, the LM-test of Breusch-Godfrey Serial-correlation has confirmed no serial correlation issues. To check the model stability the Ramsey-test is applied, the probability-value is insignificant, which assures that our model is stable. Table 7 presents all the diagnostic-test. The study results revealed that remittances have significantly positive effects on growth both in the short-term and long-term. An increase of 1% in remittances will lead to an increase in the growth rate by 0.42% in the long-term and by 0.26% in the short-term. The results are similar to studies (Glytsos,2005;Azametal.,2016;Abbasetal., 2017;Kumar et al., 2018;Muhammad et al.,2020; Das &Sethi, 2020; Abduivaliev& Bustillo, 2020) and contradict to(Chamietal.,2005;Uprety,2017; Jena &Sethi, 2019; Bird & Choi,2019).The financial-sector development index has increased economic growth in the short-term, however, the effect becomes insignificant in the long-term. A 1% increase in the FDIndex will lead to enhance growth by 6.59% in the short-run.

The results are matching with the studies of(Giuliano&Ruiz-Arranz,2009;Aggrawal et al., 2011; Bettin&Zazzaro, 2012; Abbas et al.,2017;Kumar et al.,2018;Muhammad et al.,2020; Das &Sethi, 2020). Human-capital and Physical-capital have a positive significant impact on Pakistan's economy. A 1% increase in Labor-force Participation(LF) will lead to an increase in economic growth by 0.49% & 1.67% respectively. Similarly, an increase of 1% in secondary-school enrollment(HK) would raise growth by 0.22% and 0.32% in the long-term and short-term, respectively. A 1% rise in the physical-capital would bring about a 0.35% and 1.47% rise in economic growth in the long-term and short-term, respectively. The results are matching with (Azam et al.,2016; Azam & Raza, 2016; Uprety, 2017; Bird & Choi, 2019;Muhammad et al.,2020; Das &Sethi, 2020; Abduivaliev& Bustillo, 2020).Inflation has a significantly negative impact on growth. A 1% rise in the inflation-rate would bring about a 0.19% & 0.38% decline in the growth both in the long-term and

short-term, respectively. Government expenditures are insignificant in the long-term. However, in the short-term, it has a positive significant effect on Pakistan's economy. An increase of 1% in Government expenditures will bring about a 1.32% increase in growth. Results are similar to(Rehman et al.,2020). Trade-openness has a positive significant impact on Pakistan's economy. An increase of 1% in Trade-openness will lead to an increase of 0.26% and 0.15% in economic growth in the short-term and long-term, respectively.Results are similar to(Azam,2015;Nisah&Fayissa,2013;Azam et al.,2016; Abduivaliev& Bustillo, 2020).The result of ECM has presented in Table 8, the value (1.9)lies within the range(0-2). The level of significance and negative-sign of ECM has confirmed the speed of convergence/adjustment in the economy.The CUMSUM and CUMSUM square test has been employed to check the structural stability of the model, and the graph presented in Figure 5, revealed that the blue-line is within the red-lines. Hence, the model is structurally stable, and there is no significant impact of any structural breaks in the model. The study results confirmed the connection between financial sector development, and remittances in magnifying the growth process in Pakistan. The findings are similar to(Giuliano, & Ruiz-Arranz, 2009; Aggrawal et al., 2011; Bettin, &Zazzaro, 2012; Azam, 2015; Abbas et al., 2017, Kumar et al.,2018; Muhammad et al.,2020; Das &Sethi, 2020; Abduivaliev& Bustillo, 2020).

Table 7:The ARDL Long-run Results (1,3,1,2,4,1,2)

Study Variables	Coefficients	t-values	Prob-value
Rem_t	0.426***	3.5591	0.004
LF_t	0.4918***	3.0611	0.011
HK_t	0.2169**	2.6387	0.020
PC_t	0.3570**	2.7186	0.021
$GExp_t$	-0.1432	-1.4309	0.1802
CPI_t	-0.1973**	-2.2312	0.047
TO_t	0.2616**	2.7022	0.021
$FDIndex_t$	1.20351	1.04413	0.3210

C	0.3041***	3.2027	0.008
Diagnostic-Tests (LM Test)	Chi-square (P-value)	Diagnostic Tests (LM Test)	Chi-Square (P-value)
Serial-Correlation	0.352(0.6397)	Ramsey-Reset	0.023(0.88)
Heteroscedasticity	0.699(1.000)	Normality	0.411(0.81)
Durbin-Watson	2.8637	F-Stats(Prob)	9.76(0.000)
R-Square	0.8941	Adj-Rsquare	0.8641

***Note**: (*)(**) (***)denotes 10%,5%,and1%,significance,respectively.*

Table 8:The ARDL Error-Correction Results (1,3,1,2,4,1,2)

Variables	Coefficients	t-values	Prob-value
Rem_t	0.264***	5.4098	0.000
LF_t	1.6680**	2.1235	0.0572
HK_t	0.3179*	2.1387	0.08100
PC_t	1.4741***	5.20124	0.004
$GExp_t$	1.3259***	4.90212	0.005
CPI_t	-0.3804***	-3.5633	0.004
TO_t	0.14483**	2.7822	0.0180
$FDIndex_t$	6.59707**	2.68841	0.0228
ECM(-1)	-1.91058**	3.42387	0.0051

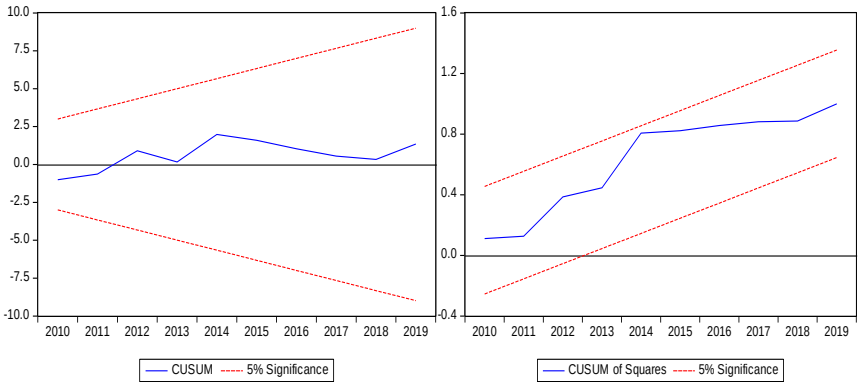
***Note**: (*)(**)(***)denotes 10%,5%,and1%significance,respectively.*

Table 6: Summary-Statistics & Correlation-Matrix Results

	GDP_t	Rem_t	LF_t	HK_t	PC_t	$GExp_t$	CPI_t	TO_t	$FDInde$
Mean	2.0831	5.1858	31.932	25.907	17.576	11.136	8.0789	32.2867	0.4941
Median	2.0741	5.0217	31.533	22.8129	17.711	11.002	7.8442	32.8689	0.4876
Maximum	6.6951	10.247	36.300	46.109	20.702	16.784	16.286	38.4993	0.9056
Minimum	-1.8437	1.3106	28.908	16.506	14.120	7.3467	2.5293	25.3062	0.1721
Std.Dev.	1.8497	2.2571	2.0681	8.7109	1.5605	1.9972	3.3681	3.48021	0.1756
Skewness	0.0735	0.1214	0.5797	0.9206	-0.3247	0.4695	0.1910	-0.3458	0.3664
Kurtosis	2.6761	2.0178	2.2669	2.6662	2.3065	3.7498	2.2442	2.3327	2.7516
Jarque-Bera	0.2372	1.9193	3.5283	6.5652	1.6924	2.7078	1.3448	1.7329	1.23021
Probability	0.8881	0.3830	0.1713	0.0375	0.4290	0.2582	0.5104	0.4217	0.57301

	GDP_t	Rem_t	LF_t	HK_t	PC_t	$GExp_t$	CPI_t	TO_t	$FDInde$
GDP_t	1								
Rem_t	0.335	1							
LF_t	0.046	0.473	1						
HK_t	0.232	0.081	0.7481	1					
PC_t	-0.095	-0.164	-0.558	-0.536	1				
$GExp_t$	-0.0262	0.1291	-0.2671	-0.071	0.4023	1			
CPI_t	-0.2631	-0.1381	-0.0283	0.0394	0.2082	0.1500	1		
TO_t	-0.1250	-0.1371	-0.4417	-0.2498	0.5430	0.4506	0.6024	1	
$FDIndex_t$	0.0061	0.0727	0.1163	0.16712	0.5495	0.1681	0.18981	0.4548 1	1

Figure 5:The Stability CUMSUM and CUMSUM of Squares Plots



Concluding Remarks

The study analyzed the short-run and long-run impact of foreign remittances, financial sector development, human-capital, physical-capital, inflation, government expenditure, and trade-openness on Pakistan's economic growth using time-series annual data over the period1975-2019. The results of ADF and PP stationarity tests showed that all variables are of mixed order of integration, therefore, ARDL bound testing model has been employed. The results showed that there is an encouraging impact of foreign remittances on Pakistan's economic growth and the financial sector acts as a catalyst in the growth process. Economic growth depends on the level of financial sector development. In the short-run, the financial sector magnifies Pakistan's economic growth, but the effects turn insignificant in the long-run. Furthermore, the empirical consequences depicted that remittances act as a cushion by giving relief to borrowers (Household) in case they are short of heavy collaterals for borrowing loans, giving financial capital for productive investment activities Moreover, human-capital, trade-openness, and physical-capital affect the growth of Pakistan's economy positively, however, Inflation hampers economic growth.

These findings suggest the following policy recommendations:

- In Pakistan, proper attention is needed to minimize the transaction cost of sending remittances to achieve the sustainable development goal (10.c.1; 17.3.2) i.e. to minimize the transaction cost of sending remittances up to 3%, so that migrants send remittances through the proper channel and avoid sending them via informal channels. This step will not only enhance the remittances flow through the formal channel but also reduces the remittance data measurement issues generated by sending remittances through informal channels.
- Proper guidance and easy accessibility of financial products and services is needed to be implemented along with better institutional quality to motivate migrants to remit more and to assure them that their valuable earnings are in safe hands.

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