



Financial Development and Trade Openness Economic Growth Nexuses in Pakistan: Evidence from ARDL Cointegration Approach

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ABSTRACT

Many studies have drawn conflicting conclusions about relationships between labour transfers, monetarily buildup, growth, and living standards in different settings, but only partially so. For this purpose, the capital and threshold conduction effects are often used to trace transmission channels for causal links. On the other hand, workers' remittances play a key role in the financial development of the economy. No study has specifically focused on the effects of worker transfers on living standards in Pakistan by monitoring the main and threshold transfer channels. Thus, there is a considerable need to explore these channels and their expansion. This study examines the effect of workers' remittances on living standards by expanding the capital conduit and threshold channels. The study scrutinizes the direct impact of financial development on living standards by tracing the threshold effect channel. Second, it channels the influence of financial development with living standards through the capital channel for GDP growth. Third, it examines the unintended effect of labour transfers on living standards by the financial development and GDP growth based on extended versions of capital leadership and threshold channels. to estimate bidirectional causal relationships between financial development and GDP growth. The data were taken for the period 1980–2020. Employing ARDL-bound (cointegration) testing, the study's results indicate a direct and indirect long and short-term relationship between worker transfers and living standards if we consider the effects of financial development and GDP growth. Furthermore, it is confirmed that the extension of the journey contributed significantly. Policymakers can use these findings to understand better worker remittances' role in developing financially sound strategies.



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1. Introduction

Remittances are a vital cause of income aimed at bereaved family, friends and the economy of the home country (Yang, 2011). Almanack remittance flows to middle and low-income nations amplified in 9.6% to USD 528 million in 2018 compared to 2017 (Bank, 2018). Due to the increase in remittances, it can be reasonably assumed that the burden of sending remittances on the senders' households is also increasing, which burdens their living conditions and prospects. Remittances directed by migrants to their household states have significant structural and household implications that have been extensively studied. Scholars interested in this issue often subscribe to one of two analytical paradigms and datasets. The first group of academics Amuedo-Dorantes and Pozo (2004); Huang, Rahman, Meo, Ali, and Khan (2024); Song, Anees, Rahman, and Ali (2024) has considerable interest in studying in what way remittance disturb emerging republics.

Globalization is a feature that is responsible for the increase in the transfer of workers to emerging economies. It is becoming an important source of foreign exchange earnings for emerging economies (Shera & Meyer, 2013). Workers' remittances are a primary indicator of the economic development of receiving economies). Originally, the term "remittance" was defined as the financial inflow of migrants to their home country from abroad. According to Russell and Teitelbaum (1995), "labour transfers constitute an important mechanism for the transfer of resources from developed to developing countries.". By channeling remittances through formal means, financial institutions will be able to expand their products or services, move forward through additional investment opportunities for beneficiaries who may not be familiar with the system, and create appropriate financial intermediation. This interface may be due to remittance income, where the excess of consumption-related funds increases the propensity to save. Moreover, by providing facilities for services and financial products, we can see a rise monetarist (Zhao et al., 2023).

All the studies reviewed indicate that there are strong relationships between worker transfers, financial development, economic growth, and living standards. This is not a study that attempts to show the relationship between workers' remittances, financial development, economic growth, and living standards. However, we cannot find any study that pipelines this channel by an extended threshold and capital conduit channel using the more general equations of the two-gap theory. Kumar (2013) investigated the positive influence of remittances on growth. The outcomes revealed that the foreign direct investment have positive ink with the standard of living (Akinmulegun, 2012; Rahman et al., 2023; Shahid, Gurmani, Rehman, & Saif, 2023).

This study produces a substantial involvement toward the description by using the capital and threshold channels that are the starting point of workers' remittances and the endpoint of the response to living standards. The two-gap theory of Harrod-Domar model is used to regulate the association of workers' settlements and financial development (financial stability) (Domar, 1946; HARROD, 1939). These two-gap theories provide the basis for constructing our regression equation. We use McKinnon, Cousins, and Fulford (1973) conduit effect of financial development, growth, and living standards and Kpodar and JEANNENEY (2004) explored the impact of living standards and financial development. In Pakistan, we have not found any study that specifically focuses on these channels to determine the impression of labour remittances on the financial development, growth output, and living standards in Pakistani economy. These studies found conflicting results on the impact of workers' remittances on growth. Similarly, there are two channels through which financial development affects people's living standards.

2. Literature

TAASIM (2021) studied the connection between remittances and output growth. The researchers given that 1987 to 2018. Researchers used non-linear autoregressive distributed lags

and establish a positive association amongst the variables. Singh (2019) observed short-term and long-term associations and the direction of causality due to the asymmetric connection between remittances and GDP. The results expressed that remittances have an important effect on capital accumulation in Malaysia. Staying in the capital has a strong relationship with the standard of living.

Guha and Alier (2013) scrutinized the effect of remittances with growth output and living standards. He found that remittances increased consumption and reduced the level of poverty (an indicator of living standards), which further improved the welfare and standard of living of the community. Khan, Khan, Hanjra, and Mu (2009) investigated the workers' remittances have a positive link with living standards for Gujarat, Pakistan. They collected data from 100 households and concluded that remittances significantly improved workers' living standards and satisfaction levels. Azizi and Bottaro (2020); Mughal (2007) evaluated the positive connection between migration, workers' remittances, and living standards in the case of Tajikistan.

Bedi, Sparrow, and Tasciotti (2017) explored whether remittances had a positive impact on productivity levels. They had found the sequence as remittances tended to increase expenditures on schooling, especially for girls, and furthermore, they would enhance the development of human capital. Thus, reducing the dropping rate through this process would help increase the economic growth of the recipients. Increased productivity levels and economic growth will increase living standards. Plato and Gordon (1983) analyzed the standard of living as an approach to meeting human needs. The term need includes food, water, shelter, clothing, education, health, transportation, entertainment, Ahmed, Ahmad, Swami, and Ikram (2016) used a GMM dynamic systems approach, the finding exhibited that positive and significant connection exist of financial development on real GDP per capita. He tested Rajan's and Zingales' simultaneous openness hypothesis and the joint effect of both GDP growth and regional financial development.

3. Method

The objective is to analyze the connection among living conditions and the return on investment of financial development. The nature of the relationship is direct and indirect. We develop a broad framework that provides a broad tactic to examining the impact of transfers on the economy. The savings investment gap is obtained by combining the MacKinnon pipeline effect and the pipeline effect. The data used is from 1980 to 2020. ARDL bounds tests are used to estimate the long-term effects of worker returns on living standards. We first explain the methodology of the autoregressive distribution lag (ARDL) model. Then we describe the binding test. As the principles show, there are many differences between fixed point, so in the long run we use the ARDL cointegration method. In the ARDL model, the variable is a function of the market and its current value and is lagged among the independent variables. This model is considered the best econometric method compared to other methods when the variables are stationary at the 1(0) or 1(1) normal level.

It was suggested by Davidson, Hendry, Srba, and Yeo (1978) Modeling the British economy. It is also often referred to as the general model when compared to other methods due to its unlimited sample (Charemza & Deadman, 1997; Ullah, Tahir, Qazi, Mirza, & Cheema, 2022). Coinvestment and current results of regressors and regressors help solve problems of bias, autocorrelation, and endogeneity (Ghouse, Khan, & Rehman, 2018; Khan, Teng, Khan, & Khan, 2019; Shahid et al., 2023). ARDL (1, 1) is the simplest form of the ARDL model. Consider the ARDL (1, 1) model:

$$y_t = \gamma_0 + \gamma_1 x_t + \gamma_2 x_{t-1} + \gamma_3 y_{t-1} + \varepsilon_{yt} \quad (1)$$

The ARDL (1, 1) can produce several theoretical appropriate models by imposing logical restrictions (Hendry, Pagan, & Sargan, 1984).

3.1. ARDL Bound Testing

Engle-Granger and Johansen Juselius cointegration methods are bivariate and multivariate cointegration methods. But the problem is that Engle-Granger only works in the case of bivariate analysis and is based on the current value of the variable. The Johansen-Juselius method is based on different models, but the variables must be placed in the same order and only lagged outcomes are considered. The ARDL model has a more general structure; relaxes both constraints. The bounds testing method was proposed by Pesaran (1997). The coordinate ARDL method provides a simple test for the existence of a coordinate vector, rather than assuming the opposite. The generalized ARDL model of Equation 1 is as follows:

$$y_t = \gamma_0 + \sum_{i=1}^p \gamma_{1i} y_{t-i} + \sum_{i=0}^q \delta_{1i} x_{t-i} + \varepsilon_{yt} \tag{2}$$

The equation introduced by Pesaran for bound testing to test the existence of cointegration is:

$$\Delta y_t = \gamma_0 + \gamma_1 y_{t-1} + \delta_1 x_{t-1} + \sum_{i=1}^p \gamma_{2i} \Delta y_{t-i} + \sum_{i=0}^q \delta_{2i} \Delta x_{t-i} + u_{yt} \tag{3}$$

It indicates that the ARDL bound testing is a restricted version of the simple ARDL model. The F test is utilized to test the joint importance of connections in the short-run and long-run. The joint significance can be done on the following parameters:

$$H_0: \gamma_1 = \delta_1 = 0 \quad \text{(No long-run relationship)}$$

$$H_1: \gamma_1 = \delta_1 \neq 0 \quad \text{(Long-run relationship)}$$

The hypotheses for short-run relationship are the following:

$$H_0: \gamma_{2i} = \delta_{2i} = 0 \quad \text{(No short-run relationship)}$$

$$H_1: \gamma_{2i} = \delta_{2i} \neq 0 \quad \text{(Short-run relationship)}$$

The Wald test is used for the testing of each of the models and can be represented as:

$$F_y(y_t | x_t)$$

$$F_x(x_t | y_t)$$

The Wald test distribution is not standardized asymptotically under the null hypothesis of there is no cointegration. These Wald test conditions refer to bidirectional relationships. So, by following the mechanism of ARDL bound testing we make the following equation for our analysis. The variables which are being used in the analysis and their abbreviation.

LIVS	Living Standard	TOP	Trade Openness
FDI	Foreign Direct Investment	DINV	Domestic Investment
FD	Financial Development	POP	Population density
GDPG	Gross Domestic Product Growth	INF	Inflation
REM	Worker's Remittances		

We apply per capita GDP as a proxy of living standard and all other variables are in percentage of GDP except population. That is why we are just taking the log of GDP and population to convert the variables of all the models into percentages.

3.2. Econometric Modeling

Channel 1: The first channel shows that financial development affects GDP growth and it leads effect living standards (Real GDP per capita).

The functional form of the channel is:

$$\ln LIVS_t = f(FDI_t, FD_t, GDPG_t, INF_t, TOP_t, DINV_t, \ln POP_t) \tag{4}$$

The bound testing equation of the above function is:

$$\Delta \ln LIVS_t = \beta_0 + \beta_1 \ln LIVS_{t-1} + \beta_2 FDI_{t-1} + \beta_3 FD_{t-1} + \beta_4 GDPG_{t-1} + \beta_5 INF_{t-1} + \beta_6 TOP_{t-1} + \beta_7 DINV_{t-1} + \beta_8 \ln POP_{t-1} + \sum_{i=1}^p \gamma_{1i} \Delta \ln LIVS_{t-i} + \sum_{i=0}^q \delta_{1i} \Delta FDI_{t-i} + \sum_{i=0}^q \delta_{2i} \Delta FD_{t-i} + \sum_{i=0}^q \delta_{3i} \Delta GDPG_{t-i} + \sum_{i=0}^q \delta_{4i} \Delta INF_{t-i} + \sum_{i=0}^q \delta_{5i} \Delta TOP_{t-i} + \sum_{i=0}^q \delta_{6i} \Delta DINV_{t-i} + \sum_{i=0}^q \delta_{7i} \Delta \ln POP_{t-i} + u_{1t} \tag{5}$$

The results attained from the proposed method form the basis of this section. Results and their theoretical implications are also covered. The main persistence of this study is to investigate how economic development affects the standard of living (real GDP per capita). Second, calculate the direct impact of economic development on economic growth and living standards. The impact of transfers on economic development, growth and livelihoods forms an important part of this study and is expanded on in (Kpodar & JEANNENEY, 2004). Third, we examine how economic development affects living standards (real GDP per capita) through remittances.

4. Results and Interpretations

4.1. Descriptive Statistics

Table 1

The Descriptive Statistics

	LIVS	FDI	FD	GDPG	INFL	TOP	DINV	POP	REM	EXR
Mean	44169.6	0.900	0.251	4.835	8.124	32.590	15.973	142000000	5.278	56.543
Median	42339.1	0.647	0.232	4.903	7.768	32.965	16.409	140000000	5.022	53.648
Maximum	61881.4	3.668	0.378	10.216	20.286	38.499	19.129	217000000	10.248	161.838
Minimum	28548.6	0.103	0.163	0.989	2.529	25.306	12.521	78054343	1.311	9.9
Std. Dev.	9026.36	0.792	0.061	2.094	3.802	3.482	1.629	41699655	2.377	39.610
Skewness	0.20028	2.223	0.778	0.116	0.701	-0.500	-0.334	0.142102	0.184	0.801
Kurtosis	2.15752	7.552	2.481	2.789	3.739	2.556	2.188	1.805477	2.087	2.936
Jarque-Bera	1.45035	67.487	4.485	0.165	4.191	1.993	1.842	2.512759	1.653	4.387
	(0.4842)	(0.000)	(0.106)	(0.921)	(0.123)	(0.369)	(0.398)	(0.284)	(0.438)	(0.000)

Descriptive information about the given data is shown in Table 1. Mean is the average value of the variable based on statistical data. 44169.6 is the mean (average) LIVS. The average value of foreign direct investment is 0.900. The average value of FD is 0.251. Average GDP is 4.8. The average value of INF is 8.12. The average TOP is 32.59. The average POP is 142,000,000. The average value of DINV is 15.97. The average value of REM is 5.27. The average EXR is 56.54. The median divides the data in half but still shows the average value. The highest value in the data is displayed as the highest value, and the lowest value is displayed as the lowest value.

Table 2

Unit Root Testing

Variables	Level		1st Diff	
	t-stat	P-value	t-stat	P-value
LLIVS	-1.2780	0.6301	-3.7937	0.0062
FDI	-2.9921	0.0444	-----	-----
FD	-1.6708	0.4380	-4.9140	0.0003
GDPG	-3.7828	0.0063	-----	-----
INFL	-2.9848	0.0449	-----	-----
TOP	-2.0633	0.2600	-6.6581	0.0000
DINV	-1.7173	0.4151	-5.9125	0.0000
LPOP	-1.9228	0.3181	-5.5685	0.0033
REM	-0.91556	0.773	-5.28863	0.0001
LEXR	-0.921312	0.7711	-4.043486	0.0032

The distribution of data around the mean is shown as standard deviation. The tails of the distribution determine the skewness. A large negative tail indicates a negatively skewed distribution. A large positive tail indicates a positively skewed distribution. As shown in Table 1, all variables are positively skewed except business openness and domestic investment, which are negatively skewed. Kurtosis refers to the peak value of the distribution. As can be seen, each variable has a higher rate than the maximum distribution. That's why it's called spike.

Table 2 contains the results of the unit base test, which shows that all variables are constant except inflation (INFL) foreign direct investment, and GDP in the first variable. Since variables are mixed in different orders, our goal is to find long-term and short-term relationships between variables. Therefore, the most appropriate method is the ARDL adhesion test. Before adopting the ARDL model, the maximum market length needs to be estimated. We use the lag length criterion for this purpose.

Table 3
The Results of Different Lag Length Criteria

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-260.438	NA	8.10E-06	13.81731	14.20121	13.95505
1	264.6136	780.8454	1.16E-15	-8.95454	-5.11556	-7.57715
2	421.3515	160.7569*	4.84e-17*	-12.83854*	-5.544462*	-10.22149*
3	541.3945*	35.3982	4.84E-16	-9.94245	-4.23094	-8.24376

The results of Table 3 show that most criteria show that 2 maximum lags should be used for estimation. That is why we used 2 maximum lags for ARDL estimations.

4.2. The Results of Channel 1

The first channel shows that the worker's remittances affect financial development and further influence the GDP growth and it leads effect living standards (per capita GDP).

Table 4
The Results of ARDL Model with Two Lags from 1980 to 2020

Variable	Coefficient	Std. Error	t-Statistic	P-Value
LLIVS(-1)	2.24499	0.28593	7.85154	0.00010
LLIVS(-2)	-1.23843	0.48334	-2.56224	0.00470
REM	1.08941	0.31170	3.49506	0.00000
FDI	2.84230	0.56230	5.05478	0.00658
FDI(-1)	0.98762	0.07340	13.45531	0.00000
FDI(-2)	0.89110	0.26493	3.36353	0.00000
FD	2.83913	1.03481	2.74362	0.00000
GDPG	3.98840	1.45892	2.73380	0.00000
GDPG(-1)	1.71214	0.08755	19.55614	0.00000
GDPG(-2)	1.09300	0.96438	1.13337	0.23740
INFL	-1.20452	0.01614	-74.62949	0.00000
INFL(-1)	-0.62396	0.10470	-5.95950	0.00837
INFL(-2)	-0.59233	0.74257	-0.79767	0.89358
TOP	3.23214	0.14734	21.93664	0.00000
DINV	2.53441	0.17432	14.53895	0.00632
DINV(-1)	1.34326	0.72546	1.85159	0.07257
LPOP	-3.40413	1.86440	-1.82586	0.09800
LPOP(-1)	3.38752	5.40343	0.62692	0.22220
LEXR	-4.85533	0.25535	-19.01441	0.00000
LEXR(-1)	-3.21894	1.30759	-2.46173	0.00220
C	0.42646	0.12773	3.33892	0.04780

The results in Table 4 show evidence of the relation between the living conditions of the people and the economy of Pakistan. These are the results of the final model, which includes the influence of financial development and economic growth. The ARDL model is used for

estimation because the dependent variable is lagged relative to the independent variables: remittances to employees, financial development, direct marketing foreign exchange, trade openness, population, growth output, lagged GDP, inflation, exchange rate and domestic investment. We use the ARDL limit test to evaluate the long-term and short-term outcomes of economic development, GDP growth, and labor transfers on living standards. To do this, we first obtain the ARDL model without restrictions, in which the lagged values of the explanatory and the response variables are proposed as lagged options (there are two). The coefficient value is 2.24499, indicating a positive impact on living standards. The P value of the first trade is 0.00010. Likewise, the t rate of the difference is 7.85, which is quite high for the table value of 1.96. If the T value is greater than the table value, we cannot use another hypothesis or discard it. This means that the difference is significant. The sign of the initial market value is positive, indicating that the previous year's standard of living has a positive impact of 2.25% standard of living. The standard of living will now increase by 2.25%. The results for the variable are consistent with previous research by (Dawood, 2023; Ponthieux & Meurs, 2015; Shahzadi, Ali, Ghafoor, & Rahman, 2023; Zahra, Nasir, Rahman, & Idress, 2023).

The results in the 2nd column of Table 4 show that the second lag value of the standard deviation of lifestyle is significant. The value of this coefficient is -1.23843, indicating that it negatively affects living standards. The P value of the second lag is 0.00470; Therefore, we can say that we cannot reject another hypothesis that the difference is significant. Likewise, the t value of the difference is -2.56224, which is very low for the table value of -1.96 at the 5% significance level. The sign of the initial market value is negative, indicating that the previous year's standard of living negatively affected this year's standard of living by 1.24%. This means that if we increase the standard of living by 1% in the last two years, the current standard of living will decrease by 1.24%. According to Awan, Rahman, Ali, and Zafar (2023); Charemza and Deadman (1992); Nawaz, Rahman, Zafar, and Ghaffar (2023), business advantage to have different characters in the results that ARDL produces without restrictions. The final characters will have both static and dynamic solutions.

The Table 4 display that remittances are associated with livelihoods. The coefficient value is 1.08941, indicating a positive impact on living standards. The P-value is 0.00470. Similarly, the t-value of the difference is 3.49506, which is very high for the value in the 5% significance table (i.e. 1.96). The sign of the initial market value is positive, indicating that remittance workers have a positive impact on the standard of living in that year, with an impact of 1.08941%. This means that if we increase remittances by 1% per year, the standard of living will increase by 1.1%. The results are consistent with the Ilyas-Lecturer, Awan, Kanwal-Lecturer, and Banaras (2023); Kpodar and JEANNENEY (2004) studies.

The foreign direct investment has a significant effect on living standards. The value of this coefficient is 2.84230, indicating a positive impact on living standards. Therefore, we cannot reject another hypothesis that this change is significant, which means that external straight investments have an impact on the standard of living, according to the data provided.

The second-order value of independent foreign direct investment is significant. The value of this coefficient is 0.89110, indicating a positive impact on living standards. Similarly, the t-value of the difference is 3.36353, which is very high compared to the 5% significance expression of 1.96. We also can't rule out another theory. The sign of the initial trade value is positive, indicating that direct foreign trade in the previous year has a positive impact on the standard of living this year, as well as an impact of 0.89110% (Tabassum, Rahman, Zafar, & Ghaffar, 2023).

Table 5 demonstrate the outcomes of long-run and short run bounds testing of the relationship. The measurement limit is based on two limits, one for short-range correlation called the I(0) limit. The other is the long-range relationship, also known as the I(1) limit. The I(0) limit is called the lower limit, and the I(1) limit is called the upper limit. If the F-test value

regarding the significance of the relationship is high, we think that there is a long-term relationship between success and independence. If the value is between the lower and upper limits of the critical value, we consider the result to be uncertain. Generally speaking, we usually use two limits at the 1% significance level. The F-stat value is 5.4762, the upper and lower limits are 2.37 and 3.68, respectively.

Table 5
Results of Bound Testing

Test Statistic	Value	Critical Value Bounds		
		Significance	I ₀ Bound	I ₁ Bound
F-Statistic	5.4762	10%	1.63	2.75
		5%	1.86	3.05
		2.50%	2.08	3.33
		1%	2.37	3.68

Table 6
The Short Run and Long Run Results of ARDL Cointegration

Variable	Coefficient	Std. Error	t-Statistic	Prob.
Short Run Coefficients (Panel 1)				
D(LLIVS(-1))	2.24082	0.54324	4.12491	0.00211
D(REM)	4.98640	1.87430	2.66041	0.00390
D(FDI)	2.03780	1.04872	1.94313	0.07014
D(FDI(-1))	1.02110	0.52760	1.93537	0.00070
D(FD)	3.09046	1.37840	2.24206	0.00452
D(GDPG)	2.94910	0.59823	4.92971	0.00000
D(GDPG(-1))	0.90783	0.47000	1.93155	0.51100
D(INFL)	-2.89210	0.11742	-24.63039	0.00030
D(INFL(-1))	-1.74920	0.19462	-8.98777	0.01840
D(TOP)	2.65221	0.27000	9.82300	0.00378
D(DINV)	2.13370	1.13872	1.87377	0.06400
D(LPOP)	-3.26593	0.52874	-6.17682	0.00000
D(LEXR)	-4.58762	2.00762	-2.28510	0.00362
CointEq(-1)	-0.61720	0.03620	-17.04972	0.00000
Long Run Coefficients (Panel 2)				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
REM	3.12870	1.32550	2.36039	0.02740
FDI	2.75323	1.05226	2.61649	0.00110
FD	1.27917	0.14833	8.62402	0.00469
GDPG	3.34568	1.61940	2.06600	0.00377
INFL	-2.27620	1.04870	-2.17050	0.04556
TOP	2.87323	0.74085	3.87829	0.00121
DINV	2.46234	1.21397	2.02834	0.01980
LPOP	-2.76340	2.13625	-1.29358	0.53920
LEXR	-3.1418	1.5003	-2.1624	0.01847
C	13.04482	13.88768	0.939309	0.3569

4.3. Interpretation of Short Run Results

The results of Table 6, Panel 2 and Row 1 represented that remittance workers (REM) have a significant impact on living standards. The coefficient value is 3.12870, indicating a positive impact on living standards. The P value of the coefficient of variation is 0.02740. Therefore, we cannot deny the other view on the significance of the difference, which denies that remittances have no impact on the standard of living that represents the information presented. Similarly, the t-value of this variable is 2.36039; this is too high for the value in the 5% significance table (i.e. 1.96).

The results in Panel 2 and Column 2 of Table 6 show that foreign direct investment (FDI) has a significant impact on living standards. The value of this coefficient is 2.75323,

which shows a positive impact on the standard of living. The P value of foreign direct investment is 0.00110. Similarly, the t-value of the difference is 2.61649; this is too high for the table value. This issue is positive, showing that foreign direct investment has a long-term impact on living standards in that year, with an impact of 2.75323%. This means that if we increase foreign direct investment by 1% every year, living standards will increase by 2.8%. The results are consistent with the Kpodar and JEANNENEY (2004); Li et al. (2022); Rahman, Chaudhry, Meo, Sheikh, and Idrees (2022); Sarwar, Saleem, Ullah, Maqsood, and Ahmad (2023) study.

The results of Table 6, Panel 2 and Column 3 show that financial development (FD) has a significant impact on living standards. The value of this coefficient is 1.27917, indicating a positive impact on living standards. The P value of the foreign direct investment coefficient is 0.00469, which means that the P value is less than the significance level of 0.05 (i.e. 5%). Therefore, we cannot reject another hypothesis that the difference is significant, that is, according to the data presented, financial development has an impact on the pattern that will be experienced. Similarly, the t value of the difference is 8.62402; This problem is positive, showing that economic development has a positive impact on the lifespan of that year, with an impact of 3.09046%. This means that if economic development increases by 1% each year, the standard of living will increase by 3.1%. These are aligned with (Rahman et al., 2023; Rahman et al., 2022; Zulfiqar et al., 2022).

The results of Table 6 confirmed that GDP growth (GDP) has a significant impact on living standards. The value of this coefficient is 3.34568, which indicates a positive impact on the standard of living. The P value of foreign direct investment is 0.00377, which means the P value is less than 0.05 or 5%. Therefore, we cannot reject another hypothesis that this change is significant; This means that GDP growth is related to the activity pattern of people according to the data provided. Similarly, the t-value of the difference is 2.06600. The sign is positive, indicating that GDP growth had a positive impact on the long-term standard of living that year, with an impact of 3.34568%. This means that if GDP grows by 1% per year, living standards will increase by 3% in the long run.

The study exhibited that inflation (INFL) has a significant impact on living standards. The value of this coefficient is -2.27620, indicating a negative impact on living standards. Similarly, the t value of the difference is -2.17050. The sign is negative; It shows that inflation had a negative impact on the standard of living that year and the long-term impact was -2.27620%. This means that if GDP grows at 1% per year, living standards will fall by -2.3% in the long run. Bakar (2018); Rahman et al. (2022); Shafique, Rahman, Khizar, and Zulfiqar (2021) The show that trade openness (TOP) has a significant impact on living standards. The value of this coefficient is 2.87323, indicating a positive impact on the standard of living. The study aligned with previous studies Bakar (2018); Shahzadi, Ali, et al. (2023); Zhu et al. (2022), This issue is positive, meaning that home investment has a long-term impact on living standards that year, with an impact of 2.46234%. This means that if we increase housing investment by 1 percent every year, the standard of living will increase by 2.5 percent. The finding indicated that the long-term impact of the population (POP) on the standard of living is not significant. The value of this coefficient is -2.76340 and shows a negative correlation with the standard of living. The value of this coefficient is -4.58762, indicating that it negatively affects living standards. The results are consistent with the (Bakar, 2018; Rahman et al., 2022; Shahid, Muhammed, Abbasi, Gurmani, & ur Rahman, 2022).

4.4. Interpretation of Long Run Results

The second panel of Table 6 shows the long-run relationship (commonality) between lifestyle evidence and lifestyle standards and all independent variables: remittances to workers, economic development, direct foreign trade, open markets, population, GDP growth,

lagged real GDP per capita price, growth price, exchange rate and housing investment. These are the results of the final model, which includes the impact of financial development and economic growth.

The results of Table 6, Panel 2 and Row 1 show that repatriated workers have an impact on their livelihoods. The coefficient value is 4.98640, which shows that there is a positive impact on living standards. The P value of the coefficient of variation is 0.00390; Therefore, we cannot deny the other view on the significance of the difference, which denies that remittances have no impact on the standard of living that represents the information presented. Similarly, the t-value of the difference is 2.66041; this is too high for the value in the 5% significance table (i.e., 1.96). The results are consistent with the (Ali, ur Rahman, & Anser, 2020; Shahzadi, Sheikh, Sadiq, & Rahman, 2023).

The results in Panel 2 and Column 2 of Table 6 show that foreign direct investment (FDI) has a significant impact on living standards. The value of this coefficient is 2.03780, indicating a positive impact on living standards. The t-value of the difference is 1.94313; this is lower than the tabular value (1.96) at the 5% significance level, but higher than the tabular value (1.68) at the 10% significance level. If the T value is greater than the table value, we cannot reject the alternative hypothesis. This means that the difference is significant at the 10% significance level. The sign is positive, meaning that foreign direct investment has a positive impact on the living standards of the people in that year and the impact is 2.84230%. This means that if we increase foreign direct investment by 1% every year, living standards will increase by 2.84%. The results are consistent with the (Fatima, Jamshed, Tariq, & Rahman, 2023; Rahman et al., 2022),

The results of Table 6, Panel 2 and Column 3 show that financial development (FD) has a significant impact on living standards. The value of this coefficient is 3.09046, indicating a positive impact on the standard of living. The P value of the foreign direct investment coefficient is 0.004, which means that the P value is less than the 0.05 significance level (i.e. 5%). Therefore, we cannot reject another hypothesis that the difference is significant, that is, according to the data presented, financial development has an impact on the pattern that will be experienced. This means that if economic development increases by 1% each year, the standard of living will increase by 3.1%. The results are consistent with the Kpodar and JEANNENEY (2004) study.

The results of Table 6, Panel 2 and Column 4 show that GDP growth (GDP) has a significant impact on living standards. The value of this coefficient is 2.94910, indicating a positive impact on living standards. The P value of the foreign direct investment coefficient is 0.0000, which means that the P value is less significant than 0.05 (i.e. 5%). Therefore, we cannot reject another hypothesis that this change is significant; This means that GDP growth is related to the activity pattern of people according to the data provided. Similarly, the t value of the difference is 4.92971; this is too high for the 5% significance table value of 1.96. The sign is positive, meaning that GDP growth has a positive impact on the standard of living for that year, with an impact of 2.94%. This means that if GDP increases by 1% each year, the standard of living will increase by 3%. The results are consistent with the Kpodar and JEANNENEY (2004) study.

The results of Table 6, Panel 2 and Column 5 show that inflation (INFL) has a significant impact on living standards. The value of this coefficient is -2.89210, indicating a negative impact on living standards. The P value of the inflation coefficient is 0.0030. Similarly, the t value of the difference is -24.63, which is very high for the table value at the 5% significance level (i.e. 1.96).

The results in Table 6, Panel 2 and Column 6 show that trade openness (TOP) has a significant impact on living standards. The value of this coefficient is 2.65221, indicating a

positive impact on living standards. The P value of the inflation coefficient is 0.00378. Therefore we cannot deny another hypothesis that this change is significant which means that open market has an impact on people's action pattern according to the data provided Similarly, the t-value of the difference is 9.82300 which is for the table value at 5% significance level is too high (i.e. 1.96). The sign is positive, indicating that inflation has had a positive impact on living conditions this year, with an impact of 2.65221%. This means that if GDP grows by 1% every year, the standard of living will increase by 2.66%. The results are consistent with the (Ilyas-Lecturer et al., 2023; Mukhtar et al., 2023; Qadri, Raza, Eid, & Abualigah, 2023).

The results of Table 6, Panel 2 and Column 7 show that domestic investment (DINV) has a significant impact on living standards. The value of this coefficient is 2.13370, indicating a positive impact on living standards. The P value of the inflation coefficient is 0.06400 Therefore, we cannot reject another hypothesis that this change is significant, which means that, according to the data given, the investment in the house has a significant impact on the pattern that will be experienced. Similarly, the t value of the difference is 1.87377, which is lower than the value in the table (1.96) at the 5% significance level, but higher than the 10% significance value (1.68). The sign is positive, indicating that housing investment has a positive impact on the standard of living in that year, with an impact of 2.13370%. This means that if we increase housing investment by 1 percent every year, the standard of living will increase by 2.1 percent. The outcomes are consistent with the (Ilyas-Lecturer et al., 2023; Rahman et al., 2022). The sign of the initial market value is positive, indicating that housing investments made in the previous year have a positive impact of -3.26593% on living standards this year. This means that if housing investment increased by 1 percent compared to the previous year, the current standard of living would decrease by 3.3 percent.

The results of Table 6, Panel 2 and Column 9 show that the exchange rate (EXR) has a significant impact on the standard of living. The value of this coefficient is -3.1418 and it negatively affects the standard of living. The P value of the inflation coefficient is 0.0036. Similarly, the t-value of the difference is -2.1624, which is lower than the value in the table (1.96) at 5% significance. This means that if we increase the exchange rate by 1% per year, the standard of living will decrease by approximately -3.14% in the long run. The results are consistent with the (Awan et al., 2023; Usman, Rahman, Shafique, Sadiq, & Idrees, 2023; Zhao et al., 2023).

Table 7
The Results of Residual Analysis

"Breusch-Godfrey Serial Correlation LM Test" (Panel 1)			
F-statistic	4.3232	Prob	0.7403
Obs*R-squared	6.12861	Prob. Chi-Square	0.27391
"Heteroskedasticity Test: Breusch-Pagan-Godfrey" (Panel 2)			
F-statistic	7.243634	Prob	0.19147
Obs*R-squared	28.24375	Prob. Chi-Square	0.9478

Table 7 and Figure 1 represent the results of the residual analysis after the combined ARDL test. The first panel of Table 6 presents the results of serial autocorrelation. The P value of the F-statistic indicates that the test is not significant as the P value is below the 5% significance level. The results in Table 6 and Panel 2 show that there is no heteroskedasticity in the residuals, so the results are valid.

5. Discussion

The economic development, economic growth, balance of payments, standard of living, currency codes and assets have a mixed (positive/negative) relationship with remittance agencies. After reviewing many studies, we found that the opposite still exists: The impact of returns on economic growth is positive or negative. Numerous studies examine how

remittances and economic development affect people's livelihoods, especially in developing countries such as Pakistan. In fact, in Pakistan, remittance workers play an important role in economic development, economic development and financial stability. The aim of this study is to examine the impact of remittances, economic development on economic growth. Foreign currencies are an important part of financial development and foreign investment in any country, especially developing countries. Families make decisions regarding savings and children's education based on multiple returns. They also increase the return on investment in human capital and productivity levels.

All the studies we reviewed found a positive relationship between employee remittances, economic development, and economic growth. This study aims to analyze these relationships through the following theoretical and empirical models. It evaluates the theoretical direct and indirect relationship between remittances and living standards through economic development and economic growth. This study contributes to the literature by comparing economic development and economic growth with remittances and economic development, which ultimately affect the way of life.

Theoretically, this study follows two different analysis methods of the Harrod-Domar model (Harrod, 1939; Domar, 1946). Moreover, to examine the direct and indirect effects of financial development on living standards, we use the McKinnon pipeline effect (1973) McKinnon et al. (1973) to measure the direct effect and the Kpodar and JEANNENEY (2004) method to measure the direct and indirect effect on the economic development of living conditions. The results showed that remittances and living standards have an impact on economic development and GDP growth. It has also been found that the expansion method has significant benefits. The results of Chapter 5 also achieve the second objective and prove that remittances influence economic development and directly influence the role of living standards in GDP growth. However, the GDP growth effect further strengthens this relationship. The third aim is to explore the relevance of Kpodar and JEANNENEY (2004) approach to the Pakistani case. The results of Sections 5.3.3 and 5.3.4 also show that this method of transmission is effective in the Pakistani economy. The ultimate goal is to examine the impact of the MacKinnon transmission by showing the relationship between financial development and GDP growth. The results in Sections 5.3.5 and 5.3.6 also confirm this.

5.1. Policy Implication

This study extends the channel proposed by Kpodar and JEANNENEY (2004), this extension is based on including the main factor of financial development is worker's remittances in the case of the Pakistan economy. This extended channel provides us with a more general picture of the relationship and provides a direct and indirect effect of workers' remittances on economic growth. This study is contributing to many aspects of this particular setup and it will provide a guideline to policymakers for long-run sustainable economic growth. It also highlights those factors which are critically important for the growth of financial development and remittances that may be used for effective and efficient policy regarding the financial sector or Diaspora's remittances. These results may use by policymakers to understand the importance of workers' remittances in making sustainable financial policies. The results and findings of this research also provide an insight into how the worker's remittances, financial development, and GDP growth ultimately affect the living standard of people. So, these results from my use to make policies regarding diasporas which leads to affect the living standard of people. The policymakers may use these channels and impacts to understand how much worker's remittances are important of Pakistani people living standards. The exchange rate and inflation both have negative impacts on living standards which can be seen in the current situation in Pakistan. These findings can help public policymakers, academicians, and researchers to understand the exchange rate and inflation must be under control if they want to make policies for improving the living standard of Pakistani people.

Authors' Contribution

Maqsood Ahmad: Analysis part-introduction--original draft.

Hira Riaz: Literature review execution.

Saif Ur Rahman: Data collection-original draft—supervision.

Nabila Shahzadi Hafiza: Methodology section.

Conflict of Interests/Disclosures

The authors declared no potential conflict of interest w.r.t the research, authorship and/or publication of this article.

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