Innovations

Imperatives of Remittances and Economic Growth: Evidence from Sub-Saharan Africa

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Abstract

To examines the imperatives of remittances and economic growth in Sub-Saharan Africa from 1970 to 2021. The study employ a sample of 48 Sub-Sahara countries using annual data from the world bank development indicator.The long run effect of imperative of remittances and economic growth was analysed using ARDL model of the mean group (MG), dynamic fixed effects (DFE) and pooled mean group (PMG) test since the variables did not have the same order of intergration. Findings from the result shows that cointegration exists between remittances and economic growth in Sub-Saharan Africa. The result findings from the ARDL models shows a negative but significant long-run between remittances and economic growth in Sub-Saharan Africa. In the short run, the coefficients of the error correction model (ECM) showed a negative and significant result suggesting that it will take about 62%, 7% and 19% speed of adjustment to correct the long-run effects in the short-run. This paper recommends Policies such as mass financial education to the African populace and setting up investment opportunities such as Diaspora bonds among others, to encourage diaspora Africans working abroad to contribute to national development are suggested. This paper adds to existing econometrics methods and literature using more comprehensive and up to date variables, this paper further make recommendation on how remittances can boast economic growth in Sub-Saharan African

Keywords: Economic Growth, Personal Remittances, Per-Capita Remittances Real Gross Domestic Product and Remittances.

1. Introduction

Foreign remittances are seen as compensatory fund transfers that migrants who work and invest abroad send to their families, which can come in the form of money or goods to fulfill their financial needs. As documents by Randazzo and Piracha (2019) indicate, "these inflows of funds and capital are received as compensation for the human capital of the migrants' households, communities, or home countries". Remittances can be used to finance investment capital and smooth consumption, which has multiplier effects on household consumption expenditure. Remittances can also increase investments by alleviating credit constraints in developing countries, thereby positively affecting economic growth (Gupta et al. 2009). Astronomically, the records of foreign remittances have waxed very strong globally recently, and many countries have recorded growth at one point in time due to funds received through foreign remittances. A stylized fact from the recent World Bank document shows that there has been exceptional growth in

remittances in the last three decades globally, increasing from $68.6 billion in 1990 to $689 billion in 2018, with about $529 billion transferred to low and middle-income countries like Africa (World Bank, 2019). Remittances have represented most of the Sub-Saharan African country's economic share, up to 22 percent of their Gross Domestic product (GDP) in 2017, and have considerably improved their GDP. For instance, Sub-Saharan African countries received about $41 billion in 2017, $46 billion in 2018, $48 billion in 2019, $42 billion, $47 billion in 2020, and $45 billion in 2021, which have contributed immensely to the improvement of household consumption and people's standard of living (World Bank's Repository, 2021).

The relationship between remittances and economic growth has remained unclear. However, this study will be based on investigating the imperatives of remittances and economic growth in Sub-Saharan Africa from 1970 to 2021. The estimators of the mean group (MG), dynamic fixed effects (DFE), and pooled mean group (PMG) of the panel autoregressive distributed lag (ARDL) model will be utilized, and panel dynamic differenced and system generalized method of moment (GMM) will be used to robustly check the findings of the ARDL result and to correct the endogeneity problem that might arise as a result of instabilities in the flows of remittances. In addition, indicators such as personal remittances (PR) and per-capita remittances (RPC) will be used as measures of remittances, while we use the real gross domestic product (RGDP) to measure economic growth and control the exchange rate (EXR) and inflation rate (INFR). Thus, the remnant sections of the paper will be structured as follows: Section 2 will treat the overview of foreign remittances in Sub-Saharan Africa, Section 3 will treat the literature review, Section 4 will handle the material and methods, Section 5 will harness the empirical findings and discussions, and a summary, recommendations, and conclusions will be done in Section 6.

1.1 *Overview of Foreign Remittances in Sub-Saharan Africa*

The reason people migrate from their countries to others is to seek better opportunities. Currently, more than 30 million individuals live outside their countries of origin (IFAD, 2021). Thus, these migrants contribute about $40 billion in remittances to their families and communities back home every year. Workers' remittances are recognized for their contribution to the economic health of the region's nations as well as for their vital importance to recipient families, particularly in times of financial turmoil. However. Although foreign remittances have remained a resilient and vital lifeline for tens of millions of Sub-Saharan African families, they have not yet reached their full development potential in the region (IFAD, 2021).

Remittance flows to sub-Saharan Africa were recorded at $48 billion in 2019 (Fig. 1). Nigeria received half of total remittance flows to sub-Saharan Africa (Fig. 2). In general, the economies of smaller, poorer, and fragile countries are more dependent on remittances. Controlling for the size of the economy, the top recipient countries in the

region in 2019 included South Sudan (35 percent of GDP), Lesotho (21 percent of GDP), and The Gambia (15 percent of GDP) (Fig. 2, second panel). While data is not available for Somalia, the country is also known to be highly dependent on remittances as a source of income and external financing.

Fig. 1: Foreign Remittances in Sub-Saharan Africa
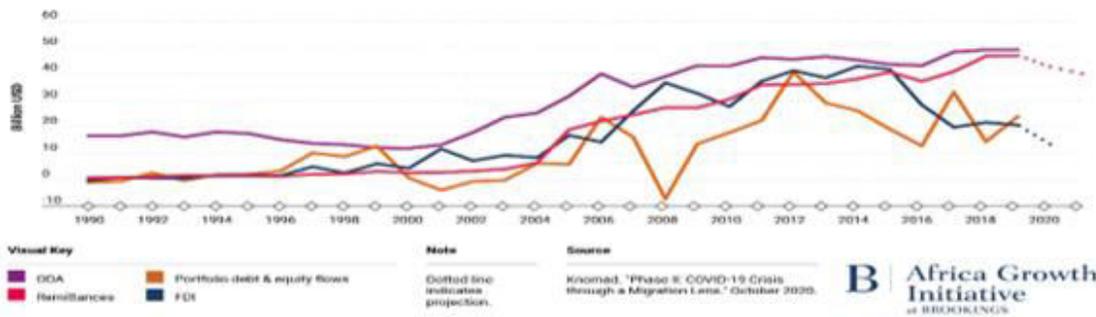
Source: Brookings

Fig. 2: Foreign Remittances in Selected Top 10 Countries of Sub-Saharan Africa
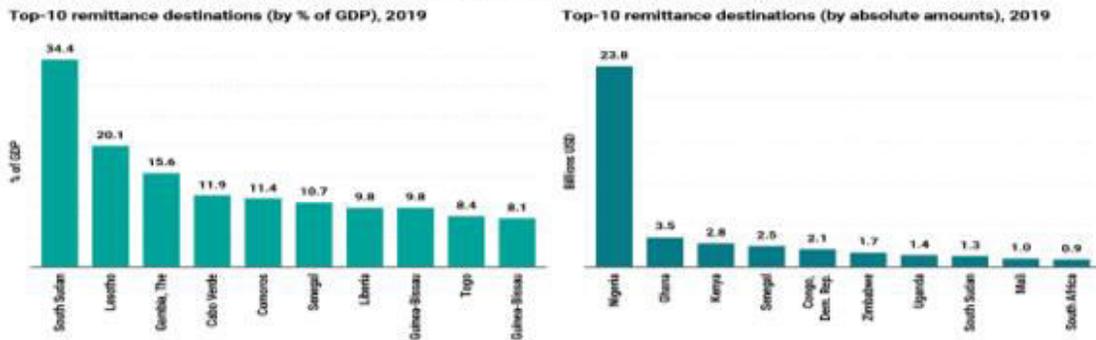
Source: Brookings

Remittances aid in augmenting recipient households' resources, smoothing their consumption patterns, and providing working capital for smallholder businesses (IMF, 2020). Indeed, remittances are countercyclical and have helped to smooth household consumption and welfare, especially for food crop farmers and local dwellers, who are typically the most disadvantaged socioeconomic group. It is used to finance a wide range of financial needs, such as educational investment, healthcare, and community development projects, which have consequential economic effects on the recipient country and thus improve economic growth (IMF, 2020).

2.0 Review of Related Literature

Neoclassical theory was the first theoretical basis formulated to describe labour migration and foreign remittances. Several researchers have contributed to creating the neoclassical theory of migration (Todaro, 1969; Harris and Todaro, 1970; Massey, 1993; Arango, 2000; Faist, 2004). Furthermore, neoclassical theory observes migration as the result of geographic differences between the supply and demand of labour, and these differences exist globally. Neoclassical theory states that international migration arises due to variances in wage levels between countries and labour markets. According to this theory, labour migration would stop if wage discrepancies were eliminated. The principle suggests that wage variations between regions are the foremost cause of labour migration. The neoclassical theory proposes that global migration is tied to the demand and supply of labour in the world. Nations with labour shortages and excessive demand will have high wages that will attract immigrants from countries with an excess workforce. The main premise of the neoclassical theory of migration is that it is directed by the push factors that push the person to leave their place of origin and by the pull factors that lead them to move to the destination country. Thus, when people work in countries abroad and earn income, they will send it back to their home countries for investment and development purposes. Neoclassical theory concluded that the main causes of migration were different wages and access to work (Sjaastad, 1962; Todaro, 1976).

Furthermore, Ukhtiyani and Indartono (2020) studied the effect of migrant remittances and official development assistance on Indonesia's economic growth. Their results show that migrants' funds are channelled towards food expenditure. In addition, Indonesia is characterized by the absence of effective infrastructure, which discourages foreign investors. Moreover, Sothan (2018) studied the effect of foreign aid on Cambodia's economic growth over the period 1980–2014 using the linear ARDL model and found that foreign aid has a significant negative impact on long-term economic growth. Muhammad and Muhammad (2019) studied the effect of migrant remittances on economic growth in Pakistan between 1976 and 2016 using autoregressive distributed delay (ARDL). The ARDL method was used to analyze the effect of workers' remittances on the Pakistani economy. The survey results revealed that foreign direct investment, remittance inflow, and gross domestic product have a significant effect on Pakistan's long-term economic growth, while consumption and inflation have hurt Pakistan's growth in the long term. Similarly, Sebil and Abdulazeez (2018) investigated the impact of remittances on Nigeria's economic growth during the period 1981–2011. The influx of remittances was used as an indicator of dependent variables, along with trade openness, foreign aid, foreign direct investment, and economic growth indicators. The outcome stressed that remittances affect Nigeria's economic growth. Bird and Choi (2019) examined the impact of remittances, FDI, and foreign aid on economic growth in 51 low- and middle-income developing countries over the period from 1976 to 2015 by using a dynamic panel model. They found a negative relationship between remittances and economic growth, whereas they suggested that FDI has a positive effect and that the effect of foreign aid is ambiguous on economic growth.

Empirical research by Williams (2018), who used a panel of 109 countries to study the effect of remittances on economic growth, made findings that entailed that migrant remittances have a positive effect on economic growth in well-governed countries. Pontarollo and Munoz (2018), in the same vein, analyzed the temporary and permanent effects of remittances on economic growth in Ecuador by employing the OLS technique. They found that both effects were statistically significant. In the same manner, akalak (2018) investigated the impact of remittances on economic growth

for Turkey within the range of 1984 and 2017 using Granger Causality Analysis. Akalak found that there is no causality between remittances and economic growth in Turkey. Just like Eggoh et al. (2019), they used Panel Smooth Transition Regression (PSTR) and the Generalized Method of Moments (GMM) and found a positive relationship between economic growth and foreign remittances in developing countries. In like manner, Dieck-Assad et al. (2020) investigated the impact of Mexican remittances on the Mexican economy for the period from 1995 to 2007. They applied an autoregressive vector model and concluded that Mexican remittances impact the Mexican service sector's GDP but have no effect on the Mexican industrial sector. Sobiech (2019) conducted an empirical study on 61 emerging and developing countries using data from 1970 to 2010. In this study, Sobiech identified the negative effect of the interactive variables of financial development and remittances on economic growth.

The study of Bangake and Eggoh (2020) engaged in the investigation by referring to 60 countries from the years 1985 to 2015 using system GMM estimation and panel threshold models. They found that beyond a given threshold of financial development, there is a positive relationship between remittances and economic growth (which is insignificant under this threshold), and remittances do contribute to the economy in countries experiencing a well-functioning financial sector. In the same vein, Pekovic (2017) worked to investigate the effects of foreign remittances on rural and regional poverty in Serbia. It was found that the contribution and receiving of foreign remittances have reduced poverty. It was stated that the reduction of foreign remittances would result in increasing poverty in the rural areas of Serbia. Results explained that the impacts of foreign remittances are higher in depth due to the severity of poverty instead of the poverty index. Yoshino (2017) investigated the causal relationships between foreign remittances and the mitigation of poverty in ten Asian developing countries. It was explained that poverty comes in three different kinds: poverty headcount ratios, poverty gap ratios, and poverty severity ratios. Results explained that foreign remittances have positive and empirically significant impacts on poverty gap ratios and poverty severity ratios. While Kousar et al. (2019) studied the impact of foreign remittances and financial development on poverty and income inequality in Pakistan using an ARDL Bounds Testing According to the research findings, financial development has a positive impact on poverty reduction and income inequality in the short run. Also, the impact of income inequality on poverty incidence is positive both in the short- and long-run, which requires growth policies and rational income distribution in a country.

3.0 Material and Methods

To investigate the imperatives of remittances and economic growth in Sub-Saharan Africa, this study used 51 years (1970–2021) of balanced panel data from 48 Sub-Saharan African Countries to estimate the specified equation. Specifically, our dataset comprised 2496 observations with N = 48 countries and T = 52 years. Measures such as personal remittances (PR) and per-capita remittances (RPC) were used as measures of remittances, while the real gross domestic product (RGDP) was used as a measure of economic growth and to control variables including the exchange rate (EXR) and inflation rate (INFR). Thus, the choice of the variables and the scope of the study were strictly based on the availability of data during the sampled period. The variables are defined in Table 1 below to buttress the readers understanding of the selected variables in terms of their meaning and expected a priori signs.

Table 1: Definition of the Variables

S/N	Variable	Definition	Expected Sign
1	RGDP	Real GDP is an inflation-adjusted metric that reflects the value of all goods and services generated by an economy in a given year (expressed in base-year prices). It is also known as constant-price GDP, inflation-corrected GDP, or constant dollar GDP. To calculate real GDP, divide nominal GDP by a GDP deflator.	To Be Determined
2	PR	Personal remittances consist of current and capital transfers in cash or kind, made or received, by resident households to or from non-resident households and net compensation of employees from persons working abroad for short periods (less than one year).	+
4	RPC	Remittance per capita is referred to as a non-commercial transfer of money by a foreign worker, a member of a diaspora community, or a citizen with familial ties abroad, for household income in their home country or homeland per one person over one year.	+
5	EXR	An exchange rate is a rate at which one currency will be exchanged for another currency.	+
6	INFR	The inflation rate is the percentage increase or decrease in prices during a specified period, usually a month or a year. The percentage tells you how quickly prices rose during that period.	-

Source: Author's Conception

To further describe the nature of the data, we carried out a descriptive statistics test in which our target was to ascertain the basic summary of the behaviour of the variables. Findings show that the overall variations in the series range from -10.08501 to 5.612349, which represent the minimum and maximum values in the series. In addition to these findings, we also discovered that the values of the mean, median, standard deviation, Skewness, and Kurtosis were not far from each other, which revealed that the variables behaved well. Also, the probability values of the Jarque-Bera statistic for all the variables are less than 0.05, which suggests that the error terms of the variables are normally distributed; thus, the variables should be used for the estimations of the relationship that is being tested.

Table 2: Results for Descriptive Statistics and Spearman's Correlation Matrix

	RGDP	PR	RPC	EXR	INFR
Mean	3.580648	0.310861	-5.345309	1.276334	0.977562

Median	3.695244	0.583152	-5.145768	1.231018	1.144293
Maximum	5.529835	4.944287	-1.604631	5.612349	4.944287
Minimum	0.309140	-7.397082	-10.08501	-2.747917	-6.350065
Std. Dev.	0.637070	1.559036	1.678738	1.649983	1.104382
Skewness	-0.541243	-1.023479	-0.467318	0.217779	-1.158828
Kurtosis	5.124831	4.122412	2.927734	2.737718	6.848236
Jarque-Bera	591.4149	499.3419	91.09883	26.87352	1386.565
Probability	0.000000	0.000000	0.000000	0.000001	0.000000
Observations	2496	2199	2488	2495	1649
RGDP	1				
PR	-0.942806	1			
RPC	-0.880384	-0.094815	1		
EXR	-0.356598	0.036331	-0.952200	1	
INFR	-0.980390	0.027940	-0.010749	-0.012688	1

Source: Author's Conception

Furtherermore the end result of the correlation matrix shows that a negative correlation exists between remittances and economic growth in Sub-Sahara Africa.

The end results is been influence by, vulnerable establishments, bad governance in place which are abnormal in most African nation

Fig. 3: Changes in Net Migration between 2000 and 2005
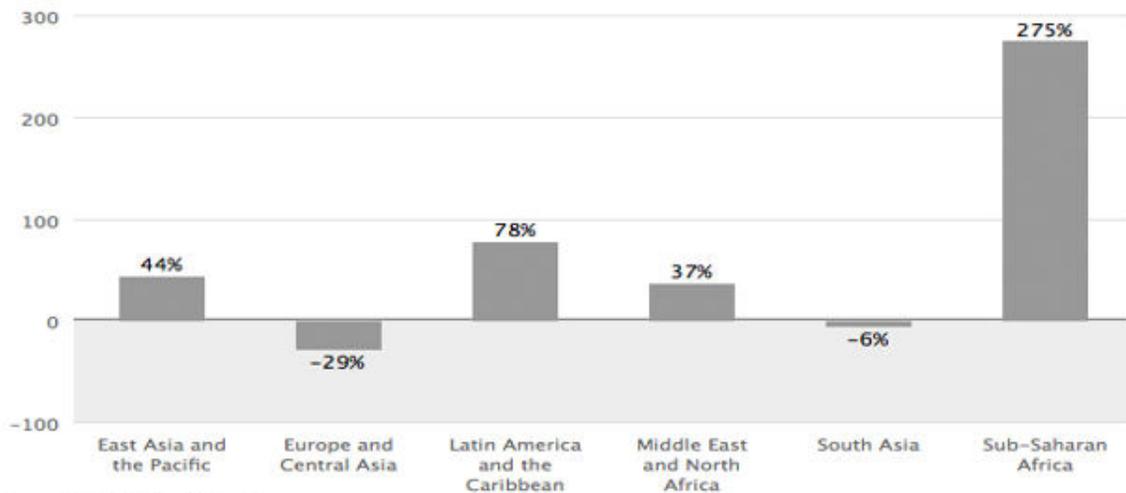
Source: United Nations University

The changes in migration Africa and the rest of the arena.supply:

United internationallocations universityeventhough Africahas thehighest variety of overseas remittances, yet, economic growth and improvement within the place are poor in comparison to otheruniversity even though local economies. African international locations have misplaced plenty of substantial percentage of skilled labour pressure because of a loss of economic opportunities and a high rate of conflicts (Naude, 2012).

 Maximum African countries have also typically didnot attract greater quite skilled immigrants. as an example, in 1960, there had been proportionately more immigrants in Africa than in \Europe, however by way of 2000 this fashion had reversed by way of a sizeable margin. Sequel to the foregoing and via the findings of Sothan (2018) and Javaid (2017) who argued that overseas remittances in Africa are commonly spent on family consumption and private consumption purposes which aren't intently useful tothe financial growth and development of Africa. moreover, to estimate the long-run relationships among remittances and monetary growth in Sub-Saharan Africa, we employed a couple of regression analysis which encompass a panel autoregressive distributed lag (ARDL) version with lots emphasis at the suggest institution (MG), dynamic constant effects (DFE) and pooled mean institution (PMG) estimators and also panel dynamic differenced and machine generalized approach of second (GMM). The essence of combining the 2 models is due for the subsequent reasons, at the same time as the ARDL model estimates each long-run and brief-run relationships, the GMM version rectifies the trouble of endogeneity which would possibly stand up due to variations in the united States' specific results and time variations.

Thus, the baseline version for the estimation of the relationship among remittances and economic boom in Sub-Saharan Africa is expressed below'

$$RGDP_{it} = \varphi_0 + \beta_i PR_{it} + \beta_2 RPC_{it} + \beta_3 EXR_{it} + \beta_i INFR_{it} + \mu_{it} ---------------(1)$$

Where RGDP represents the real gross domestic product (a proxy for economic growth), PR represents personal remittances, RPC represents remittances per capita, EXR represents the exchange rate, and INFR represents inflation. Further, the term 'i' is for the cross-section, 't' is for the period starting from 1970 to 2021, φ_0 represents the constant, while $\beta_1, \beta_2, \beta_3 and \beta_4$ are the coefficients and μ_{it} represents the white noise error term. This specification allows for dynamics in the way that credit adjusts to changes in remittances and other control variables. It takes the co-integration form of the simple ARDL model and adapts it for a panel set by allowing the intercepts, short-run coefficients and co-integrating terms to differ across cross-sections. In complement, it is possible to capture potential adjustment dynamics of remittances on credit, in the short term (see Flomentin and Leon, 2019). The ARDL order p of the dependent variable and order q of the explanatory variables are expressed below.

$$Y_{it} = \sum_{j-1}^{p} \lambda_{ij} Y_{it-j} + \sum_{ij}^{q} + \mu_i + \varepsilon_{it} -----------------------(2)$$

Where $i = 1,2,---,N$ is a country index, $t = 1,2,------,T$, is the time index, j is the number of time lags, and μ_i represents country-specific fixed effects

Parameterizing equation 2, concerning the long-run coefficient ξ and the short-run coefficient θ_i which measures the speed of adjustment, the error correction form is given by:

$$\Delta Y_{it} = \theta_i[Y_{it-1} - \xi_i X_{it}] + \sum_{j=1}^{p-1} \lambda_i \Delta Y_{it-j} + \sum_{i=0}^{q-1} \sigma_{ij} \Delta X_{i,t-j} + \varepsilon_{it} ---------------(3)$$

Where

$$\theta_i = -(1 - \sum_{j=1}^{p} \lambda_{ij}); \lambda_i = -\sum_{i}^{p} {}_{m=j+1}\lambda_{im}, j = 1,2,-----,p-1; \sigma_{ij} = -\sum_{i}^{q} {}_{m=j+1;}\sigma im_j = 1,2,---,q-2;$$

$$\theta_i = -(\frac{\beta_i}{\theta_i})$$

θ_i defines the long-run or equilibrium relationship between Y_{it} and X_{it}. While, λ_{ij} and σ_{ij} are the short-run coefficients relating to foreign remittances, its past values and other determinants and the error-correction coefficient θ_i measures the speed of adjustment of economic growth towards its long-run equilibrium following a change in remittances and control variables. $\theta_i < 0$ ensures that such a long-run relationship exists. That is, finding a significantly negative establishes evidence of a long-run equilibrium relationship. As a result, a significant and negative value is treated as evidence of co-integration between and X_{it}.

Furthermore, there are a few existing procedures for estimating the above model (mean group (MG), dynamic fixed-effect (DFE) or pooled mean-group (PMG) approach). However, following the maximum likelihood-based test, the PMG estimator as proposed by (Pesaran et al., 1999) is more efficient (if the long-run homogeneity restrictions are valid). PMG approach restricts the long-run parameters to be identical over the cross-section but allows the short-run coefficients and error variances to differ freely across groups. Therefore, the long-run adjustment seems to be given by conditions expected to be homogeneous across countries, while the short-run adjustment depends on country characteristics.

We then implement several tests before presenting the results. Even if the ARDL specification dispenses with unit root pretesting of the variables, we check the stationarity of variables using the LLC (Levin et al., 2002), IPS (Im et al., 2003) and Fisher based testes – Fisher-ADF and Fisher-PP (Madala and Wu, 1999) approach. Then, we test the possible existence of a cointegrated relationship with panel cointegration tests: Pedroni'sCointegration test (2004), and the residual-based cointegration test developed by Kao (1999). Finally, we employ cross-section dependence tests such as Breusch-Pagan (1980) LM, the Pesaran (2004) scaled LM and Pesaran (2007) CD tests to investigate contemporaneous correlation across countries.

To correct the endogeneity issues which are much characterized by time panel series analysis, we further employed the dynamic panel differenced and system generalized method of moment (GMM). Panel generalized method of moment (GMM) panel data estimator originally proposed by Holtz-Eakin et al. (1988) and subsequently extended by Arellano and Bond (1995) and Blundell and Bond (1998) was utilized. It has several advantages over other estimation methods since it allows us to control for the country-fixed effects, and allow the use of appropriate lags of the dependent

variables as instruments to deal with the endogeneity in the regressors. Thus, below is the generalized method of moment equation for the imperatives of remittances and economic growth in Sub-Saharan Africa.

$$W_{it} - W_{i,t-1}(1-\alpha)W_{i,t-1} + \beta_1 X_{it} + \beta_2 Y_{it} + \eta_i + \lambda_t + \varepsilon_{it} - - - - - - - - - - - - - (4)$$

This equation can be rewritten alternatively as follows:

$$W_{it} = \alpha W_{i,t-1} + \beta X_{it} + \beta_2 Y_{it} + \eta_i + \lambda_t + \varepsilon_{it} - - - - - - - - - - - - - - - - - - - (5)$$

Where is country index t is the time index, W is used to denote the measures of remittances, X represents the measures of economic growth Y is the vector of the explanatory variables that affect foreign remittances and economic growth, η_i is the unobserved country fixed effects, λ_i is the time fixed effects and ε_t is the error term.

If equation 5 is estimated, it would result in spurious regression due to the existence of the country fixed effects which are correlated with the lagged dependent variable $W_{i,t-1}$. However, to eliminate the country-specific effects, we transform equation 5 into the first difference as follows:

$$W_{it} - W_{i,t-1} = \alpha(W_{i,t-1} - W_{i,t-2}) + \beta_1(X_{it} - X_{it-1}) + \beta_{2'}(Y_{it} - Y_{it-1}) + (\lambda_t - \lambda_{t-1}) + (\varepsilon_{it} - \varepsilon_{i,t-1}) - - - - (6)$$

The estimation of the above equation requires the use of instruments since the new error term, $(\varepsilon_{it} - \varepsilon_{i,t-1})$, is correlated with the lagged dependent variable, $(W_{i,t-1} - W_{i,t-2})$, and the explanatory variables (X_{it}) are potentially endogenous. Also, the estimation must fulfil the moment conditions listed below for differenced GMM.

$$E[W_{i,t-s}(\varepsilon_{it} - \varepsilon_{i,t-1})] = 0 \text{ for } s \geq 2; t = 3,.....T \ ; \ E[X_{i,t-s}(\varepsilon_{it} - \varepsilon_{i,t-1})] = 0 \text{ for } s \geq 2; t = 3,.....T \text{ and}$$

$$E[Y_{i,t-s}(\varepsilon_{it} - \varepsilon_{i,t-1})] = 0 \text{ for } s \geq 2; t = 3,.....T$$

Additionally, to deal with this potential bias and imprecision of the estimates of the difference GMM method, Arellano and Bover (1995) suggested an alternative estimator combining the equations indifference and in level. They proposed the lagged differences of the explanatory variables as the instruments of the equation in the levels. The estimators are based on the moment conditions associated with the system equations known as system GMM estimators as expressed below.

$$E[W_{i,t-s}W_{i,t-s-1}(\eta_i + \varepsilon_{it})] = 0 \text{ for } s = 1; \ E[X_{i,t-s}X_{i,t-s-1}(\eta_i + \varepsilon_{it})] = 0 \text{ for } s = 1 \text{ and}$$

$$E[Y_{i,t-s}Y_{i,t-s-1}(\eta_i + \varepsilon_{it})] = 0 \text{ for } s = 1$$

The consistency of the GMM estimator depends on two specification tests namely: the Hansen J test of over-identifying restrictions and the serial correlation test in the disturbances. The Hansen J test has a null hypothesis of "the instruments as a group are exogenous". Failure to reject the null of the Hansen J test would imply that the instruments are valid and the model is correctly specified. Therefore, the higher the p-value of the Hansen J test statistic, the better it is.

4.0. Empirical Findings and Discussions

Table 3 below shows the outcome of the Levine, Lin and Chu 2002 (LLC), I'm, Pesaran, and Shin, 2003 (IPS), and Fisher-based tests Fisher-ADF and Fisher-PP tests (Madala and Wu, 1999). The results indicate that variables are stationary at the level and first difference; hence, the ARDL method of estimation becomes more appropriate for the estimation of the long-run and short-run relationship between remittances, and economic growth in Sub-Saharan Africa. In addition, the variables were found to be integrated in the order I(0) and I(1) which entailed that the ARDL model is the most suitable model for the analysis of the relationship between remittances and economic growth (Pesaran, et al. 2001)

Table 3: Summary of the Unit Root Tests

Variable	LLC	IPS	Fisher-ADF	Fisher-PP	Integration Order	
					Level	First Diff.
RGDP	-47.1957***	-46.0137***	1565.27***	1586.92***	_	
	(0.0000)	(0.0000)	(0.0000)	(0.0000)		I(1)
PR	-19.6320***	-22.0659***	679.149***	690.315***		_
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	I(0)	
RPC	-8.45156***	-30.8682***	1111.31***	1122.12***	_	
	(0.0000)	(0.0000)	(0.0000)	(0.0000)		I(1)
EXR	-90.6185***	-53.3357***	1300.02***	1299.29***	_	
	(0.0000)	(0.0000)	(0.0000)	(0.0000)		I(1)
INFR	-37.9165***	-38.4546***	1258.81***	1249.57***		_
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	I(0)	

Source: Computed by the Author, ***, **, and * denotes 1%, 5% and 10% levels of significance, I(0) represents integration order at level; and I(1) represents integration order at first difference.

Haven confirmed that the series has no unit root and the variables are integrated and did not violate the assumptions of ARDL, we move to investigate further the existence of cointegration between the variable. We employed Pedroni's (2004) cointegration test, which was complemented with Kao's (1999) cointegration test as the robustness check to investigate if cointegration exists between remittances and economic growth as shown in table 4 below.

Table 4: Results for Cointegration Tests

Within-Dimension				Between-Dimension			Kao test (Robust. Check)
Panel-v	**Panel-rho**	**Panel-PP**	**Panel-ADF**	**Group-rho**	**Group-PP**	**Group-ADF**	**ADF Statistic**

9.530631***	8.474407***	-0.178446	6.432371***	9.259341***	-19.42210***	8.241533***	-1.854477**
(0.0000)	(0.0024)	(0.4292)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0318)

Source: Author's Conception. Note: (.) represents P-value; ***, **, and * denotes 1%, 5% and 10% level of significance. Decision was based on 5% significant level.

Findings from the results of the Pedronicointegration test in Table 4 show that there is an existence of cointegration between remittances and economic growth in Sub-Saharan Africa since the probability values of 6 out of 7 tests of Pedroni are significant at the 5% level benchmark (see table 4). However, these findings are similar to other existing results from authors such as (Manasseh, et al. 2019, Adigun and Ologunwa 2017; and Reeves 2017). Furthermore, we robust checked these findings with another cointegration test – Kao's (1999) cointegration and the results confirmed that cointegration exists between remittances and economic growth in Sub-Saharan Africa.

As the variables are integrated of orders I(0) and I(1), the panel dynamic ARDL analysis with a mean group (MG), dynamic fixed effects (DFE) and pooled mean group (PMG) was carried out and the result is illustrated in table 5 below. To study the long-run relationship between the remittances and economic growth in Sub-Saharan Africa, indicators such as personal remittances (PR), and per-capita remittances (RPC), will be used as the measures of remittances; while the real gross domestic product (RGDP) will be used to measure the economic growth and the control variables are exchange rate (EXR) and inflation rate (INFR). We applied a likelihood test – the Hausman test to select the most suitable estimator in which the result suggested PMG as the most suitable estimator. Furthermore, the estimators were taken through some specific econometric tests such as the normality test, Breusch-Godfrey Serial Correlation test, Ramey Reset test, and White Heteroscedasticity test to satisfy the basic assumptions of the classical linear models (Gujarati, 2003). The results entailed that the error terms of the models are normally distributed, serially uncorrelated and homoscedastic, and the models are correctly specified (see table 5).

The long-run estimates, as shown in Table 5, reveal that a unit increase in unit increase in the personal remittances (PR) will increase the real GDP by the magnitude of 0.542288 in the long run for MG, decrease the real GDP by -0.110515 for DFE and decreases in the real GDP by the rate of 111.4151 for PMG. The continuous inflow of personal remittances can contribute to economic growth through their influences on consumption, savings and investment but can also exert a negative influence on the economic growth by discouraging the receivers to work, and therefore reducing the number of labour supplies or labour force participation in the economy (IMF, 2019). In addition to this, remittances can as well increase the consumption of non-tradable goods, raise their prices, and increase the real exchange rate, decrease exports, which will damage the receiving country's trade competitiveness in the international markets (Sothan, 2018). We also found remittances per capita (RPC) to have a negative but significant relationship with the real GDP in Sub-Saharan Africa. Specifically, a unit increase in the RPC would lead to decreases in the real GDP by -818.1662, -0.771322 and -111.4151 for MG, DFE and PMG respectively. The exchange rate was found to have positive long-run relationships with real GDP, while the inflation rate portrayed a positive relationship at MG, but a negative relationship with economic growth at DFE and PMG.

Table 5: Estimated ARDL Results

Variable	Dep. Var.: *Ln*RGDP	Dep. Var.: *Ln*RGDP	Dep. Var.: *Ln*RGDP
	MG	DFE	PMG
Lag Dep. Var.	0.542288***	0.929630***	-0.193314***
	[0.151091]	[0.022319]	[0.018989]
	{3.589143}	{41.65168}	{-10.18054}
	(0.0003)	(0.0000)	(0.0000)
***Ln*PR**	1.253675***	-0.110515***	-0.411940***
	[0.431006]	[0.005675]	[0.110029]
	{2.908720}	{-19.47400}	{-3.743922}
	(0.0037)	(0.0000)	(0.0054)
***Ln*RPC**	-818.1662***	-0.771322***	-111.4151**
	[94.80227]	[0.113713]	[48.12438]
	{-8.630238}	{-6.783059}	{-2.315150}
	(0.0000)	(0.0000)	(0.0207)
***Ln*EXR**	0.313778***	0.071103***	0.092170**
	[0.058021]	[0.006474]	[0.039689]
	{5.407968}	{10.98285}	{2.322282}
	(0.0000)	(0.0000)	(0.0203)
***Ln*INFR**	0.609354***	-0.444679***	-0.393782***
	[0.130352]	[0.013576]	[0.111982]
	{4.674686}	{-32.75478}	{-3.516465}
	(0.0000)	(0.0000)	(0.0004)
No. of Obs.	2440	2496	2439
Hausman	_	_	13.717585
			(0.0175)
Normality	877992.7	730646.7	788112.4
	(0.0000)	(0.0000)	(0.0000)
S.Correlations	1.216076	1.214806	0.012972
	(0.2966)	(0.2705)	(0.9093)
Ramsey	-0.000482	-0.009191	-0.000482

	(0.0000)	(0.0000)	(0.0000)
Heteroscedasticity	0.254180	0.525635	0.370460
	(0.9072)	(0.9575)	(0.8691)

Source: Author's Conception. [.]=standard error; {.}=t-statistics; (.)=p-values; ***, ** and * represents 1%, 5% and 10% level of significance; *In*shows that the models are in natural logarithm.

Foreign remittances have shown a positive landmark footprint in the lives of the most vulnerable set of people in society. According to World Bank, remittance inflows to Sub-Saharan Africa returned to growth in 2021, increasing by 6.2 per cent to $45 billion. In the report titled, "Migration and Development Brief 35", the World Bank explained that the region's largest recipient is Nigeria, and the county is experiencing a moderate rebound in remittance flows, in part due to the increasing influence of policies intended to channel inflows through the banking system. Nigeria continues to dominate remittance inflows into Sub-Saharan Africa given the exceptional size of the Nigerian migrant base (an estimated 800,000 persons) concentrated in two key host countries, the United States (375,000) and the United Kingdom (220,000). Also, according to the World Bank's top remittances receiving countries ranking, Nigeria made the top list, with about $17.6 billion in remittances annually, Ghana, the second with about $4.5billion, Kenya the third, with about $3.7billion in remittances inflows annually. Furthermore, Senegal receives $2.6billion annually, Zimbabwe receives about $1.4billion annually, the Democratic Republic of Congo receives about $1.3billion, Uganda receives about $1.1billion annually, Mali receives about $1billion annually, same as South Africa, finally, the Gambia receives about $700billion (Oluwole, Business Insider Africa, 2021). These findings align with previous empirical studies by scholars such as (Todaro, 1969; Harris and Todaro, 1970; Massey, 1993; Adigun, and Ologunwa, 2017; Amuedo-Dorantes, C., and Pozo, 2006; Bangake, and Eggoh, 2020; Dieck-Assad, et al., 2020; Eggoh, et al. 2019).

We further tested the long-run relationships in the short-run using the dynamics of the error correction model (ECM). As proposed by Pesaran et al. (2001) "the coefficient of the error correction model must possess negative and be statistically significant" to be able to measure the speed of adjustment of the relationship. As observed in Table 6 below, the coefficient of the error correction model for the mean group (MG), dynamic fixed effects (DFE) and pooled mean group (PMG) have negative and are statistically significant which makes it suitable to measure the speed of adjustment. Thus, findings show that it will take about 62%, 7% and 19% to adjust from the short-run back to the long-run, however, these findings tallied with findings of previous empirical literature such as (Adigun and Ologunwa, 2017; Agarwal and Horowitz, 2002; Bangake and Eggoh 2020; Bird and Choi 2019; De Haas, 2008; Eggoh, 2019; Kousar, et al. 2019; Muhammad, and Muhammad 2019).

Table 6: Estimated Results for Error Correction Model

Variable	Dep. Var.: ΔLnRGDP	Dep. Var.: ΔLnRGDP	Dep. Var.: ΔLnRGDP
	MG	DFE	PMG
ECM(-1)	-0.627859***	-0.070370***	-0.192084***

	[0.020990]	[0.022319]	[0.019151]
	{-29.91229}	{-3.152914}	{-10.02987}
	(0.0000)	(0.0016)	(0.0000)
ΔlnPR	-0.128824***	-0.110515	-0.741228
	[0.043057]	[0.065675]	[1.956391]
	{-2.991961}	{-1.682746}	{-0.378875}
	(0.0028)	(0.0926)	(0.7048)
ΔlnRPC	-4.089606	-0.771322	1651.003
	[37.88430]	[11.437134]	[3288.018]
	{-0.107950}	{-0.067440}	{0.502127}
	(0.9140)	(0.9462)	(0.6156)
ΔlnEXR	-0.016087	0.001103	-0.566061
	[0.025424]	[0.006474]	[1.198946]
	{-0.632751}	{0.170354}	{-0.472132}
	(0.5270)	(0.8647)	(0.6369)
ΔlnINFR	-0.004921	-0.044679	0.050862
	[0.024488]	[0.023576]	[0.026177]
	{-0.200956}	{-1.895109}	{1.943037}
	(0.8407)	(0.0582)	(0.0521)

Source: Author's Conception. [.]=standard error; {.}=t-statistics; (.)=p-values; ***, ** and * represents 1%, 5% and 10% level of significance; In shows that the models are in natural logarithm; Δ=first different; and ECM=error correction model.

We deepened our investigation by employing panel dynamic differenced and system generalized method of moment (GMM) for the analysis. The panel GMM model is very consistent in correcting the problem of endogeneity and country-specific effect in panel studies. To choose between the differenced and system GMM, this test involves comparing the coefficients of the PMG with fixed effects, if the coefficient of the PMG is greater than the fixed effects, different GMM is the best model, but if the fixed effects are greater than the PMG, the system GMM is the most suitable model. Thus, differenced GMM is the best suitable model for the estimation, evidence from the results suggests that negative and significant relationships exist between remittances and economic growth in Sub-Saharan Africa. The Hasen J-test is a statistical test used for testing over-identifying restrictions in a statistical model. It was proposed by John Denis Sargan in 1958, and several variants were derived by him in 1975. The statistic is asymptotically distributed as a chi-square variable with (m-k) degrees of freedom (where m is the number of instruments and k is the number of endogenous variables). It has a null hypothesis "the over-identifying restrictions are valid". Thus, we do not reject the null and thus, conclude that the instruments are valid and the model is correctly specified. Finally, the value of the AR2 entailed that there is no evidence of second-order serial correlations in the series.

Table 7: Estimated Results for Panel Generalized Method of Moment

Variable	Dep. Var.: RGDP	Dep. Var.: RGDP
	DIFFERENCED GMM	SYSTEM GMM
Lag Dep. Var.	0.904159***	-1.970813***
	[0.011280]	[0.703343]
	{80.15467}	{-2.802065}
	(0.0000)	(0.0038)
PR	-0.133343***	-0.107072***
	[0.013057]	[0.009628]
	{-10.21274}	{-11.12089}
	(0.0000)	(0.0000)
RPC	-12.79914***	-0.926598***
	[1.870509]	[0.130741]
	{-6.837785}	{-7.087279}
	(0.0000)	(0.0000)
EXR	-0.323924***	-23.44346***
	[0.020114]	[2.907598]
	{-16.10440}	{-8.062827}
	(0.0000)	(0.0000)
NFR	-0.060571***	0.449043***
	[0.016770]	[0.020329]
	{-3.611888}	{22.08878}
	(0.0003)	(0.0000)
No. of Obs.	2392	2342
PMG	0.970534	
Fixed Effects	0.912225	
J-Statistic	49.19069	234.3739
	(0.346627)	(0.838980)
AR1	-0.566061	
	(0.6369)	
AR2	0.741228	
	(0.7048)	

Source: Author's Conception. [.]=standard error; {.}=t-statistics; (.)=p-values; and ***, ** and * represents 1%, 5% and 10% level of significance.

4.1 Discussions

This study centred mostly on investigating the imperatives of remittances on economic growth in Sub-Saharan Africa from 1970 to 2021. We employed annual time-series data which was gotten from the World Bank's World Development Indicator (WDI) for each of the selected 48 African countries. Foreign remittances were measured with personal remittance (PR) and remittances per capita (RPC), while economic growth was measured with the real gross

domestic product (RGDP) and the control variables are exchange rate (EXR) and inflation rate (INFR), the reasons behind the selection of the data are based on the availability of data in the sampled period and countries. The results of the descriptive statistics show that the total variations in the series range from -10.08501 to 5.612349 which represents the minimum and maximum values in the series and also the values of the mean, median, standard deviation, Skewness and Kurtosis are not far from each other, finally, we discovered that values of the probability values of the Jarque-Bera statistics are statistically significant which entailed that the series are normally distributed and are most suitable for the estimation of the analysis of the relationship between remittances and economic growth. The results of the correlation matrix show that strong negative correlations exist between remittances and economic growth in Sub-Saharan Africa in the sampled period. Furthermore, findings from the results of the panel unit root tests – LLC, IPS, Fisher-ADF and Fisher-PP show that the variables do not have any form of unit root, thus, the variables were found to be integrated at level – I(0) and first difference – I(1). In the like manner, the results of the Pedroni (2004) cointegration test entailed that there is the existence of cointegration between remittances and economic growth in Sub-Saharan Africa since 6 out of 7 tests of Pedroni are significant at a 5% level which led to the rejection of the null hypothesis "no cointegration" and acceptance of the alternative. However, the result of the Kao (1999) cointegration test which was used for robustness check confirmed that cointegration exists between remittances and economic growth in Sub-Saharan Africa. More so, the results of the panel ARDL analysis of mean group (MG), dynamic fixed effects (DFE) and pooled mean group (PMG) show that a negative but significant relationship exists between remittances and economic growth in Sub-Saharan Africa. While the exchange rate has a positive and significant long-run relationship with economic growth in Sub-Saharan Africa. These results were also examined in the short-run to check the degree it will take foreign remittances to precipitate economic growth in Sub-Saharan Africa from the short-run back to the long-run and the result findingsentailed that it will take about 62%, 7% and 19% speed of adjustment to correct the long-run effects in the short-run for MG, DFE, and PMG respectively. We, however, deepened our investigations by employing dynamic panel differenced and system generalized method of moment (GMM) to further check if a long-run relationship exists between remittances and economic growth in Sub-Saharan Africa and also to correct for the endogeneity problems which are peculiar to time series data which the ARDL model cannot correct. We started the GMM analysis by comparing the coefficient of the PMG with the Fixed Effects coefficient to choose the most suitable model for the analysis and choose differenced GMM over system GMM since the coefficient of PMG is greater than the coefficient of the fixed effects model according to the assumptions of the GMM model (Arellano and Bond, 1995; and Blundell and Bond, 1998). Findings suggested that negative and significant long-run relationships exist between remittances and economic growth in Sub-Saharan Africa. These findings are in line with previous empirical findings made by authors such as (Adigun and Ologunwa, 2017; Agarwal and Horowitz, 2002; Bangake and Eggoh 2020; Bird and Choi 2019; De Haas, 2008; Eggoh, 2019; Kousar, et al. 2019).

From the foregoing, this study found negative relationships between remittances and economic growth in the long-run and short-run in Sub-Saharan Africa. These findings rhymed with earlier findings of some authors and contrasted with some authors' findings in one way or the other. While some of the reviewed scholars' objectives were based on examining the relationship between foreign remittances and financial development, household consumption expenditure, growth of small and medium enterprises, and agricultural development, our study's objective was to

investigate the imperatives of remittances and economic growth in Sub-Saharan Africa. In addition, some of the reviewed studies are single-country analyses, while some are panel analysis and their research findings differ from each other. Thus, we employed multiple regression analysis panel dynamic ARDL model with much emphasis on the mean group (MG), dynamic fixed effects (DFE) and pooled mean group (PMG) and robust checked the findings with panel dynamic differenced and system GMM and thus conclude that negative but significant long-run and short-run relationships exists between remittances and economic growth in Sub-Saharan Africa.

5.0. Summary, Recommendation and Conclusion

This study utilized the panel dynamic autoregressive distributed lag (ARDL) model with a mean group (MG), dynamic fixed effects (DFE) and pooled mean group (PMG) estimators and panel dynamic generalized method of moment (GMM) to investigate the imperatives of remittances and economic growth in Sub-Saharan Africa, with panel annual time series data for 48 selected Sub-Saharan African countries from 1970 to 2021. Remittances were measured with personal remittance (PR) and remittances per capita (RPC), while economic growth was measured with the real gross domestic product (RGDP) and the control variables are exchange rate (EXR) and inflation rate (INFR). The result of the Pedroni (2004) cointegration tests suggests that cointegration exists between remittances and economic growth in Sub-Saharan Africa since 6 out of 7 tests of the Pedronicointegration test are statistically significant, while the Kao (1999) cointegration test confirmed the existence of cointegration between remittances and economic growth in Sub-Saharan Africa since the probability value of the ADF statistic is less than 0.05 which led to the rejection the null hypothesis "no cointegration" and acceptance of the alternative. The result of the ARDL model of the mean group (MG), dynamic fixed effects (DFE) and pooled mean group (PMG) suggested that a negative but significant long-run exists between remittances and economic growth in Sub-Saharan Africa (see table 5). In the short run, the coefficients of the error correction model (ECM) were found to be both negative and statistically significant for the mean group (MG), dynamic fixed effects (DFE) and pooled mean group (PMG) which suggests that it will take about 62%, 7% and 19% speed of adjustment to correct the long-run effects in the short-run. The results of the differenced and system GMM further confirmed the existence of negative and significant long-run relationships between remittances and economic growth in Sub-Saharan Africa.

Based on the above findings, this study concludes that there is an existence of a negative long-run relationship between remittances and economic growth in Sub-Saharan Africa. Many factors such as weak institutions and governance frameworks in most African countries which weakens the standard of living of the households, and the most vulnerable population of the Africans, make the utilization of foreign remittances in Africa have an inverse relationship with economic growth. Most of the received remittances are used for household consumption and non-taxable items. It is therefore advised that the Sub-Saharan African national government, through the Central Banks should design and implement a policy framework that would enhance financial deepening, and financial education through the financial systems so that people would be more financially knowledgeable. This will result in higher productivity of foreign remittances and boost economic growth. Since remittances have not fostered economic growth because a large proportion of them are spent on consumption instead of productive investment, policymakers should set up investment

opportunities such as Diaspora bonds among others, to encourage diaspora Africans working abroad to contribute to national development. Viewed in this manner, economic growth will be improved through remittances in African national economies.

Reference

1. Agarwal, R. and Horowitz, A.W (2002). Are international remittances altruism or insurance? Evidence from Guyana using multiple-immigrant households‖, World Development, 30(11), 2033-2044.
2. Amuedo-Dorantes, C., andPozo, S (2006). Remittances as insurance: evidence from Mexican immigrants, Journal of Population Economics 19(2), 227–254.
3. Bangake, C., and Eggoh, J (2020). Financial development thresholds and the remittances-growth Nexus. Journal of Quantitative Economics, 18(2), 425–445.DOIhttps://doi.org/10.1007/s40953-019-00188-6
4. Basu, B., and Bang, J.T (2013). Insurance and remittances: New evidence from Latin American immigrants to the US, Migration Letters, 10(3), 383 – 398
5. Bauer, T.K andZinmmerman, K.F(1999). Migration Pressure and its Labour Market Impact Following EU Enlargement to Central Europe. IZA Publishers, CoornellUniversit. y
6. Bird, G. and Choi, Y (2019). The effects of remittances, foreign direct investment, and foreign aid on economic growth: An empirical analysis. Rev Dev Econ. 00:1 30.
7. Dieck-Assad, F. A., Peralta, E. F. and Carbajal-Huerta, E (2020), Importance of remittances income for Mexico (1995 to 2017). The International Trade Journal, 34(1), 74-93.
8. Duarte, L. D. R. V., Kedong, Y., andXuemei, L (2017). The Relationship between FDI, Economic Growth and Financial Development in Cabo Verde. International Journal of Economics and Finance, 9(5), 132-142.
9. Eggoh, J., Bangake, C. andSemedo, G (2019). Do remittances spur economic growth? Evidence from developing countries. The Journal of International Trade & Economic Development, 28:4, 391-418.
10. Fagerheim, M. G (2015). Impact of Remittances on Economic Growth in ASEAN, an Empirical Analysis, 1980-2012. Oslo: Department of Economics, University of Oslo.
11. Faist, T. (2004). The Volume and Dynamics of International Migration and Transnational Social Spaces. Oxford: Oxford University Press.
12. Guilano, P. and Arranz, M (2006). Remittances, Financial Development, and Growth. Journal of Development Economics 90(1):144-152.https://doi.org/10.1016/j.jdeveco.2008.10.005
13. Harris, J. R., andTodaro, M. P (1970). Migration, Unemployment and Development: A Two Sector Model. American Economic Review, 60, 126-142.
14. Javaid, W. (2017), "Impact of remittances on consumption and investment. Case study of Tehsil Sargodha, Punjab, Pakistan", Journal of Finance and Economics, 5(4), 156-163. DOI: 10.12691/jfe-5-4-1
15. Kick, H. (2017). Understanding cross-regional variation in the effect of remittances on development outcomes, Diss. Columbus, OH: The Ohio State University.
16. Kousar, R., Rais, S. I., Mansoor, A., Zaman, K., Shah, S. T. H andEjaz, S (2019). The Impact of Foreign Remittances and Financial Development on Poverty and Income Inequality in Pakistan: Evidence from ARDL - Bounds Testing Approach. The Journal of Asian Finance, Economics and Business, 6(1), 71–81.
17. Lucas, R. E. B and Stark, O (1985). Motivations to remit: Evidence from Botswana. Journal of Political Economy Vol. 93 No.5, PP. 901–918.
18. Muhammad, K and Muhammad, I. K (2019). The Effect of Migrant Remittances on Economic Growth in Pakistan. InzinerineEkonomika—Engineering Economics, 30, 434-441.
19. Nguyen, N (2017), "The long-run and short-run impacts of foreign direct investment and export on the economic growth of Vietnam", Asian Economic and Financial Review, 7(5), 519-527.
20. Pontarolllo, N. and Munoz, R. M (2018). Temporary and permanent effects of remittances on economic growth in Ecuador. Journal of International Development, 30, 533-536.
21. Reeves, M (2017). Crypto currency-Remittance Transfers Futuristic Technologies & Poverty Alleviation. Economics Student Theses and Capstone, 56, 1-45.
22. Şakalak, A (2018). Ekonomikbüyümeileişçigelirleriarasındakiilişki: Türkiyeörneği. SelçukÜniversitesiSosyalBilimlerEnstitüsü, YüksekLisansTezi.
23. Sobiech, I (2019). Remittances, finance and growth: Does financial development foster the impact of remittances on economic growth? World Development, 113, 44–59.
24. Sothan, S (2018), "Foreign aid and economic growth: evidence from Cambodia", The Journal of International Trade and Economic Development, 27(2), 168-183.
25. TripatiRao, D., Sethi, N., Dash, D.P and Bhujabal, P (2020), "Foreign aid, FDI and economic growth in South-East Asia and South Asia", Global Business Review, 1-
26. Ukhtiyani, K andIndartono, S(2020), "Impacts of Indonesian economic growth: remittances migrant workers and FDI", Journal of Economics and Policy, 13(2), 280-291

27. Williams, K (2018), *"Are remittances good for economic growth? The role of political institutions", Applied Economics Letters, 25 (1), 56-60.*

28. Yoshino, N(2017). *International remittances and poverty reduction: Evidence from Asian developing countries. Asian Development Bank. Journal of Monetary Economics, 53(1), 1-30.*